

## The 23rd NREL Industry Growth Forum

October 19-21, 2010 Denver, Colorado





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## The 23rd NREL Industry Growth Forum

October 19-21, 2010 Denver, Colorado

#### **Welcome to the 23rd NREL Industry Growth Forum**

We are pleased that you are attending NREL's 23rd Industry Growth Forum and want your experience to be as enjoyable as possible. Below is some general information for your convenience.

#### **General Information**

#### **Name Badges**

Name badges must be worn at all times throughout the event. For networking and communication convenience, the nametags are color coded as follows:

Presenting Companies/Entrepreneurs Blue Investors Green White

#### **Hotel Contact Information**

If you need to send a fax or receive one, or if you need internet access, please coordinate this directly with the hotel business center, located on the lower level 1 of the hotel between the main lobby area and the ballroom level.

#### Other

If you have any questions or require assistance during the event, please see any staff member or volunteer at the Forum registration desk.



#### **Dear Participants,**

It's a pleasure to welcome you to the 23rd NREL Industry Growth Forum in Denver, Colorado.

We are excited that this year's Forum brings together 34 of the nation's most promising emerging companies with a dynamic group of investors, strategic partners, and policymakers. Despite the recent market turndown, there are tremendous opportunities emerging as the cleantech sector matures, attracting capital and new players from across the globe.

Strategic partners are becoming a major source of capital and managerial know-how to support companies through early growth and scale-up and to avoid becoming another casualty of the Valleyof-Death (mostly from failed debt financing). Investment professionals are also stepping up their partnerships with public and private actors, as the real costs of deploying a new and massive energy infrastructure becomes apparent.

In this respect, NREL is dedicated to providing a Forum that provides both the breadth and depth that new ventures require for success, and thus have dramatically expanded our strategic and other partnering activities and are featuring more early-stage companies.

This year's event kicks off with a One-on-One Partnering Session featuring 40 of the country's leading strategic partners and investors. Our panels and speakers provide market and technological insight and cover a spectrum of topics, including strategies for obtaining financing, the significance of new market players, competing on a world stage, and using product design for competitive advantage.

We wouldn't have been able to put on such an ambitious event without the talents and time of many volunteers and strong support from sponsors. We would like to thank the 120 investors who helped to review and select our company presenters out of a pool of 200 applications. Additional thanks needs to go to our sponsors, company mentors, speakers, and panelists, all who through their years of support have helped make the NREL Forum a must-attend event.

Welcome to Denver, and we hope that you will find the Forum both enjoyable and valuable.

#### Sincerely, Lawrence M. (Marty) Murphy

**Chairman, NREL Industry Growth Forum** 

NREL is a national laboratory of the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, operated by the Alliance for Sustainable Energy, LLC.

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#### **Program-At-A-Glance**

#### **Tuesday, October 19th**

#### Registration

11:00 a.m. - 7:00 p.m. Ballroom Fover

#### **On-site Sign-up for One-on-Ones**

Didn't get all the meetings you wanted? This is your opportunity to sign-up for extra one-on-one meetings 11:00 a.m. - 3:00 p.m. Ballroom Foyer at the Colorado Booth

#### **Clean Energy Opportunity Forum**

Sponsored by Metro Denver Economic **Development Corporation** 

#### **Clean Energy Opportunity Forum 2011**

1:25 p.m. - 2:30 p.m. Colorado Ballroom A-E

#### **Networking Break**

2:30 p.m. - 2:50 p.m. Ballroom Foyer

#### **One-on-One Networking Sessions**

One-on-One 10-minute meetings with 45 leading investors, energy firms, policymakers, and industry experts. Hosted in conjunction with the Environmental Business Cluster 2:50 p.m.-5:30 p.m. Colorado Ballroom F-J

#### **Colorado Welcome Reception**

Sponsored by Brownstein Hyatt Farber Schreck

5:30 p.m. – 7:30 p.m. Denver Ballroom

#### **Wednesday, October 20th**

#### **Continental Breakfast & Registration**

7:00 a.m. - 8:00 a.m. **Ballroom Fover** 

#### **General Session**

Panel Sponsored by Goodwin Procter 8:00 a.m. - 9:45 a.m. Colorado Ballroom A-E

#### **Networking Break**

9:45 a.m. - 10:10 a.m. **Ballroom Fover** 

#### **Company Presentations**

10:10 a.m. - 12:15 p.m.

#### Track A – Heat Recovery

Colorado Ballroom A-E

MTPV

**Thermal Centric Corporation** 

**ElectraTherm** 

**May Ruben Technologies ReGreen Technologies** 

Track B - Solar

Denver Ballroom

**7Solar Technologies Pythagoras Solar BrightLeaf Technologies** 

Sunnovations **Linum Systems** 

#### **Luncheon With Keynote Address**

Sponsored by Oracle 12:15 p.m. - 1:30 p.m. Colorado Ballroom F-J

#### **Break**

1:30 p.m. - 1:40 p.m. Ballroom Fover

#### **General Session**

Panels Sponsored by Autodesk/Rocky Mountain Institute and CMEA

1:40 p.m. – 3:25 p.m. Colorado Ballroom A-E

#### **Networking Break**

3:25 p.m. - 3:45 p.m.

#### **Company Presentations**

3:45 p.m. - 5:45 p.m.

#### Track A – Built Environment

Colorado Ballroom A-E

Microstaq

**Enovative Kontrol Systems** 

Incenergy Enertag

**PCM Innovations** 

#### Track B - Marine & Hydrocarbon **Technology**

Denver Ballroom

**Ocean Renewable Power Company OsComp Systems** 

**Eco Power Solutions Solid Carbon Products Natural State Research** 

#### **Networking Cocktail Reception**

5:45 p.m. – 7:30 p.m. Sponsored by Battelle Ventures **Ballroom Foyer** 

#### Thursday, October 21st

#### **Continental Breakfast & Registration**

7:00 a.m. – 8:00 a.m.

**Ballroom Foyer** 

#### **General Session**

Panel Sponsored by Andrews Kurth 8:00 a.m. - 9:00 a.m

Colorado Ballroom

#### **Networking Break**

9:00 a.m. - 9:20 a.m. **Ballroom Foyer** 

#### **Company Presentations**

9:20 a.m. – 11:00 a.m.

#### Track A - Solar

Colorado Ballroom A-E **NanoMas Technologies Clarian Power Clean Power Finance Energy Materials Corporation** 

#### Track B – Engine Technology

**Denver Ballroom Mission Motors** VanDvne SuperTurbo **Emissions Technology Tour Engines** 

#### Networking Break

11:00 a.m. – 11:15 a.m. Ballroom Foyer

#### **Company Presentations**

11:15 a.m. – 12:30 p.m.

#### Track A - Bioenergy Technology

Colorado Ballroom A-E

Zeachem

**OPX Biotechnologies** 

**ZERE** 

#### Track B – Inverters, Systems, and **Storage**

Denver Ballroom

**Ideal Power Converters** Infinirel

**Paper Battery Company** 

#### 2010 Best Venture Award Luncheon

Sponsored by SVB Financial Group 12:30 p.m. - 2:30 p.m.

Colorado Ballroom F-J

#### NREL-Wilson Sonsini Goodrich & **Rosati Best Venture Awards**

Sponsored by Wilson Sonsini Goodrich & Rosati

#### **Agenda for the 23rd NREL Industry Growth Forum**

#### Denver, Colorado · October, 2010

http://www.cleanenergyforum.com/

#### Tuesday, October 19, 2010

#### **Clean Energy Opportunity Forum**

Sponsored by Metro Denver Economic Development Corporation

11:00-7:00 Registration Opens

1:15-1:25 Welcome to the 2010 Clean Energy Opportunity Forum

L. Marty Murphy, NREL Forum Chair, and Dan Arvizu, Director, NREL

This afternoon session will provide updated information on opportunities and what organizations are looking for in an investment or partnering opportunity followed by the opportunity to have personal, prescheduled one on one networking meetings.

1:25 – 2:30 Clean Energy Opportunities 2011

Moderator: Tom Clark, Executive VP, Metro Denver Economic Development Corporation and

**Denver Metro Chamber of Commerce** 

**Panelist Speakers:** 

Sanjay Wagle, former Renewable Energy Advisor, Office of the Secretary, U.S. Department of Energy and newly appointed Director of Commercialization, ARPA-E

David Danielson, Program Director, ARPA-E

Christopher Jones, Investment Manager, Dow Venture Capital

Forest Baskett, General Partner, New Enterprise Associates (NEA)

2:30 - 2:50 Break

2:50 – 5:30 One-on-Ones and Innovation Networking Session

Hosted in conjunction with the Environmental Business Cluster

Network with hundreds of attendees and have the opportunity for one-on-one, 10-minute meetings with 45 investors, energy firms, policymakers, and industry experts listed below.

Moderator: Mary Jeffreys, Energy Industry Manager, Metro Denver Economic Development Corporation

**Access Venture Partners** Ventures Altira Group Chrysalix Energy Venture **Applied Ventures** Capital Andrews Kurth LLP **CMEA Ventures** ARPA-E Dow Venture Capital **Battelle Ventures** Fairfield and Woods **Battery Ventures** Firelake Capital Bosch General Electric General Motors **BP Alternative Ventures** Braemar Energy Ventures **Good Energies** Brownstein Hyatt Farber & Goodwin Procter LLP **Hamilton Clark Securities** Schreck Cascadia Capital Company Chevron Technology

Honda Strategic Venturing Infield Capital Kleiner Perkins Caufield & Byers Lockheed Martin Mohr Davidow Ventures NV Institute for Ren. Energy Com. New Enterprise Associates NGP Energy Technology Partners NREL – (multiple centers

Pangaea Ventures
PG&E Corporation
Rockport Capital Partners
Siemens Venture Capital
Silicon Valley Bank
U.S. DOE, EERE
Wilson Sonsini Goodrich &
Rosati
Xcel Energy
Yellowstone Capital

Nth Power

#### 5:30 – 7:30 Colorado Welcome Reception

Re-energize after an afternoon of networking and join us for drinks and hors d'oeuvres along with a welcome from Denver Mayor John Hickenlooper. Our host, John Herrick of Brownstein Hyatt Farber Schreck, will introduce our guest speaker. *Sponsored by Brownstein Hyatt Farber Schreck* 

represented)

#### Wednesday, October 20, 2010

7:00 - 8:00 **Continental Breakfast and Registration** 

8:00 - 8:15 NREL Welcome and Opening Remarks – L. Marty Murphy, NREL Forum Chair

8:15 - 8:45 Keynote: Where We've Been, Where We're Going – A Green Tech History

Alexis Madrigal, Senior Science Editor, The Atlantic; author of the forthcoming book, *The History of* 

Green Technoloav

8:45 - 9:45 Changing Players - Changing Strategies - Competing on a World Stage

> New players are stepping up their activity just as the pace of investing has slowed. The clean energy marketplace is still a place of start-ups and innovative entrepreneurs, but strategies are changing as sophisticated conglomerates with a global reach increase their activity and increasingly partner with VC's and entrepreneurs. These players often have the capital, technological depth, managerial expertise and factory capacity that can tip the scale for a growing clean energy company. This Session will provide a broad overview of the changes and trends shaping the clean energy landscape and provide insight for competing on the global stage. Sponsored by Goodwin Procter

Moderator: Bill Schnoor, Partner, Goodwin Procter Mike Sherman, Partner, Chrysalix Energy Venture Capital

Trond Unneland, Managing Director, Chevron Technology Ventures

Anders (Andy) Solem, VP, New Business Initiatives, Lockheed Martin

Doug Arent, Executive Director of Joint Institute for Strategic Energy Analysis, NREL

9:45 - 10:10 **Networking Break** 

10:10 - 12:15 **Company Presentations** 

Track A – Heat Recovery

MTPV (Heat to Electricity Through Semiconductors - Early Stage)

Thermal Centric Corporation (Carbon Waste Heat Recovery - Early Stage)

ElectraTherm (Waste Heat Capture - Early Stage)

May Ruben Technologies (Binary Fluid Injector Heat Pump - Seed)

ReGreen Technologies (Heat Regenerator from Fossil Fuel Gas Flumes - Seed)

Track B - Solar

Solar Technologies (PV/Thermal Collectors for Air Conditioning & Heating Systems - Early Stage)

Pythagoras Solar (Building Integrated Photovoltaics- Early Stage)

brightLeaf technologies (Concentrating Photovoltaics - Early Stage)

Sunnovations (Solar Thermal - Early Stage)

Linum Systems (Hybrid Solar Air Conditioning – Seed)

12:15 - 1:30 **Luncheon & Keynote Address – Sponsored by Oracle** 

Introductions by Casey Porto, Senior VP for Commercialization and Deployment, NREL

"Innovation, Energy and the Great Recession"

John Denniston, Kleiner Perkins Caufield & Byers

1:30 - 1:40 **Break** 

1:40 - 2:35 **Design For Competitive Advantage** 

> Emerging cleantech companies are entering an increasingly competitive landscape and face tremendous financing and scaling challenges. In the clean transportation, buildings, and energy industries, some companies are relying on strong, often integrative design as a tool to optimize performance, increase profitability, and capture competitive advantage. This panel will discuss how focusing on design can help cleantech startups, what some of the challenges to this approach are, and how some companies have been able to overcome those challenges. Sponsored by Autodesk and Rocky Mountain Institute

Moderator: Lionel Bony, Director, Office of the Chief Scientist, Rocky Mountain Institute

Adam French, Clean Tech Designer, in partnership with Lunar

Seth Hindman, Industry Manager, Autodesk

Rob Lamkin, CEO, Cool Earth Solar

David Wells, Partner, Kleiner Perkins Caufield & Byers

#### 2:35 – 3:25 Entrepreneurs and Accelerating Lab to Market

Technologies coming out of government and university labs are rarely ready for early venture funding, and often lay dormant for years until their potential is recognized and developed. Experts will discuss some of the innovative programs and ideas to attract private sector entrepreneurs to identify "winners" and build market driven businesses around them. Sponsored by CMEA

Moderator: Rachel Sheinbein, Principal, CMEA

Steve Hane, President and CEO, Ampulse

Karina Edmonds, Technology Transfer Coordinator, U.S. Department of Energy Bill Farris, NREL, Vice President of Commercialization and Technology Transfer

#### 3:25 – 3:45 Networking Break

#### 3:45 – 5:45 Company Presentations

#### **Track A – Built Environment**

Microstaq (Silicon Expansion Valve for AC & Refrigeration - Later Stage)

Enovative Kontrol Systems (Monitoring & Control Systems - Seed)

Incenergy (Wireless Mesh Home Energy Management Systems - Early Stage)

Enertaq (HVAC Control Networks - Seed)

PCM Innovations - (Phase Change Materials for Building Materials - Seed)

#### Track B - Marine & Hydrocarbon Technology

Ocean Renewable Power Company (Marine Energy Generation Technology)

OsComp Systems (Hybrid Rotor Compressor Technology for Natural Gas - Seed)

Eco Power Solutions (Emission Control & Energy Recovery - Early Stage)

Solid Carbon Products (Carbon Capture - Early Stage)

Natural State Research (Waste to Hydrocarbon Fuel - Early Stage)

#### **5:45 – 7:30 Networking Cocktail Reception –** Sponsored by Battelle Ventures

Join us for a casual reception, hosted by our sponsor, Kef Kasdin, and enjoy drinks and hors d'oeuvres while mingling with investors, entrepreneurs, and energy executives.

#### Thursday, October 21, 2010

#### 7:00 – 8:00 Continental Breakfast and Registration

#### 8:00 – 9:00 Welcome and Morning Plenary Session

Welcome from L. Marty Murphy, NREL Forum Chair

#### Panel: Is Cleantech Financing Still Green? Funding in the Clean Tech Space

Have VCs moved away from cleantech investing or has the focus within cleantech shifted? What do current trends tell us about the road ahead? Experts on this panel will address these questions and provide insight on "who" is getting financed and "why". Sponsored by Andrews Kurth

Moderator: Alan Bickerstaff, Partner, Technology & Emerging Companies, Andrews Kurth

Eric Giler, CEO of MIT-inspired WiTricity Tim Woodward, Partner, Nth Power

David Kirkpatrick, Founder & Managing Director, SJF Ventures

#### 9:00 – 9:20 Networking Break

#### 9:20- 11:00 Company Presentations

#### Track A - Solar

NanoMas Technologies (Silver Nanoparticle Inks for PV Metallization - Later Stage)

Clarian Power (Plug in Solar and Wind - Early Stage)

Clean Power Finance (SaaS for Solar Sales - Early Stage)

Energy Materials Corporation (Polymer Photovoltaics - Early Stage)

#### Track B - Engine Technology

Mission Motors (Powertrains for Electric Vehicles - Early Stage)

VanDyne SuperTurbo (Integrated Turbocharger and Transmission into a Supercharger - Early Stage) Emissions Technology (Pre-combustion Catalytic System for Diesel Engines - Later Stage) Tour Engines (Opposed-cylinder Split-cycle Combustion Engine - Seed)

#### 11:00 - 11:15 **Networking Break**

#### 11:15 - 12:30 **Company Presentations**

#### Track A - Bioenergy Technology

ZERE (Bioenergy Technology - Seed)

ZeaChem (Bioenergy Technology - Later Stage)

OPX Biotechnologies (Bioenergy Technology - Early Stage)

#### Track B - Inverters, Systems, and Storage

Ideal Power Converters (Inverters for Solar and Wind - Early Stage) Infinirel (Electronic Failure Prediction Systems for Solar and Wind - Seed) Paper Battery Company (Energy Storage - Seed)

#### 12:30 - 2:30 **2010 Awards Luncheon -** Sponsored by SVB Financial Group

Gather with other industry leaders to celebrate clean energy innovation and understand the strategies that will shape our energy future.

Matt Maloney, Head of Cleantech Practice, Silicon Valley Bank, Welcome and Introductions.

Dan Arvizu, Director of NREL will give a brief recap of the issues raised over the last few days and his perspective on NREL's role in creating a clean energy economy.

#### **Keynote – Eric Giler, CEO WiTricity**

Eric Giler wants to untangle our wired lives with cable-free electric power. Here, he covers what this sci-fi tech offers, and demos MIT's breakthrough version, WiTricity — a near-to-market invention that may soon recharge your cell phone or even your car.

#### **NREL-Wilson Sonsini Goodrich & Rosati Best Venture Awards**

Bob O'Connor, Partner, Wilson Sonsini Goodrich & Rosati will share his perspectives on the future of clean energy innovation and the issues raised over the last few days - followed by the presentation of these prestigious Awards:

The Best Venture Award is the most prestigious designation bestowed by NREL in collaboration with the clean energy investment community. This award recognizes standout, innovative companies and gives them access to an unparalleled network of clean energy investors, strategic partners, and resources to help them achieve success. Since 2002, winners of the Best Venture Awards have raised nearly \$900 million in growth capital.

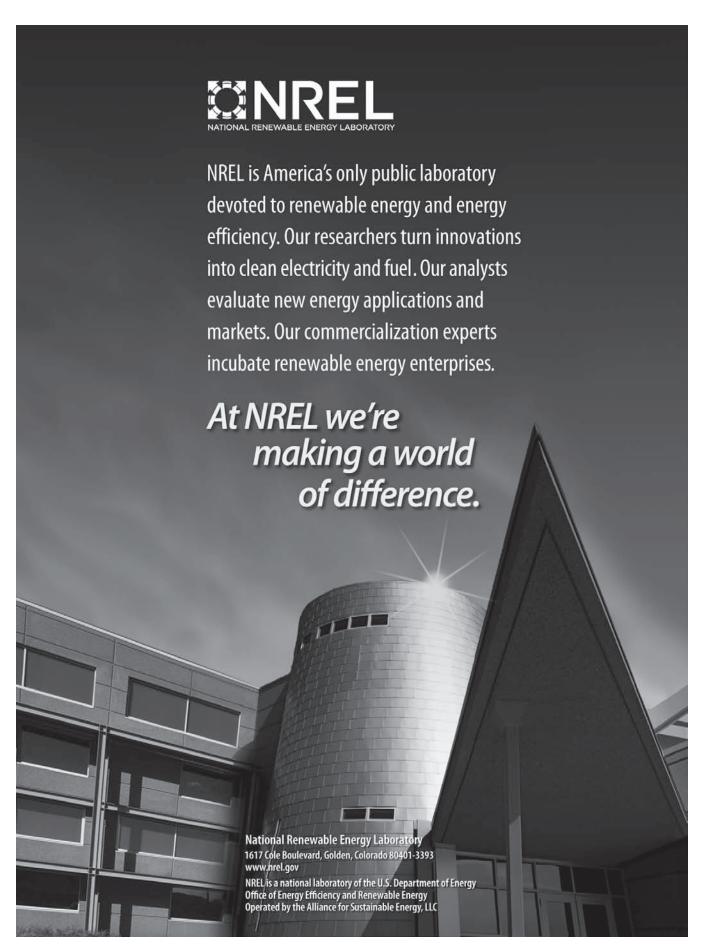
#### Best Venture -

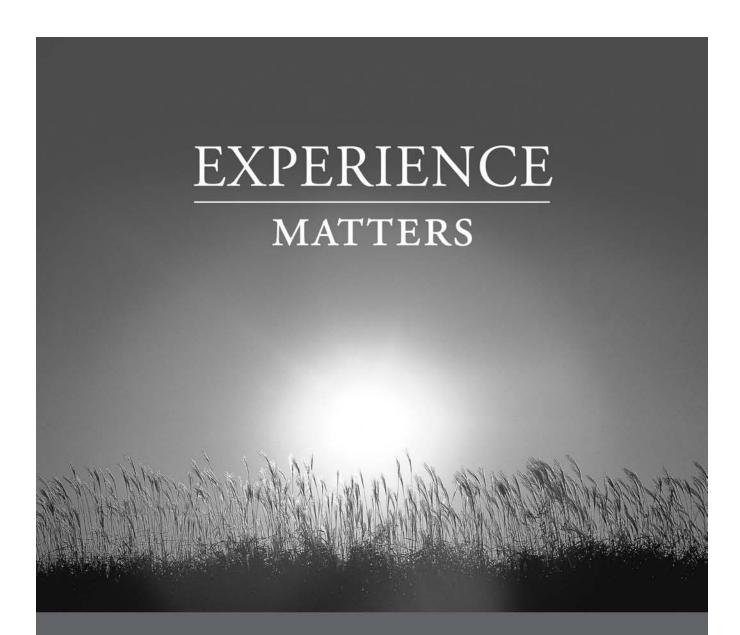
First place award given to the best overall presentation, and the company, who in the judges' opinion, has the best chance of future success. \$25,000 Prize Package: \$10,000 in cash and \$10,000 in-kind NREL commercialization services and \$5,000 in-kind services from Wilson Sonsini Goodrich & Rosati

Outstanding Venture – (2 Awards) Award given to the next best company presentations with the best chance of future success.

> \$15,000 Prize Package Each: \$5,000 in cash and \$5,000 in-kind NREL and Wilson Sonsini Goodrich & Rosati commercialization services

#### 3:00 pm Adjourn







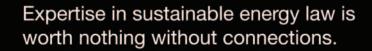
Wilson Sonsini Goodrich & Rosati

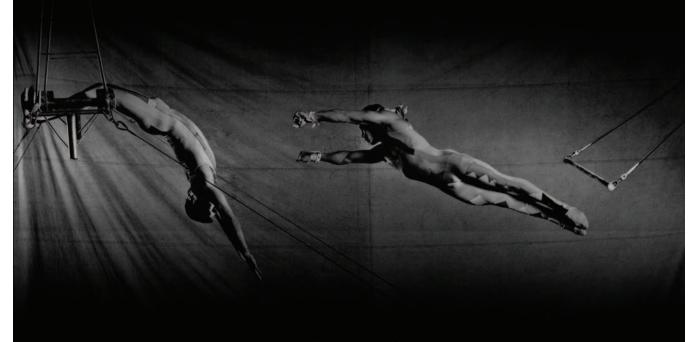
#### Illuminating the path to success

When faced with the complexities of the energy industry, you need an experienced law firm that can help you achieve your goals at every phase of your company's life cycle, from securing venture capital to project finance, protecting intellectual property to carbon counseling. Our unique energy and clean technology team has been on the cutting edge of the most significant transactions in the industry, including the first-ever Title XVII Loan Guarantee issued by the Department of Energy. Let us show you why experience matters in a law firm—and why you matter to us.

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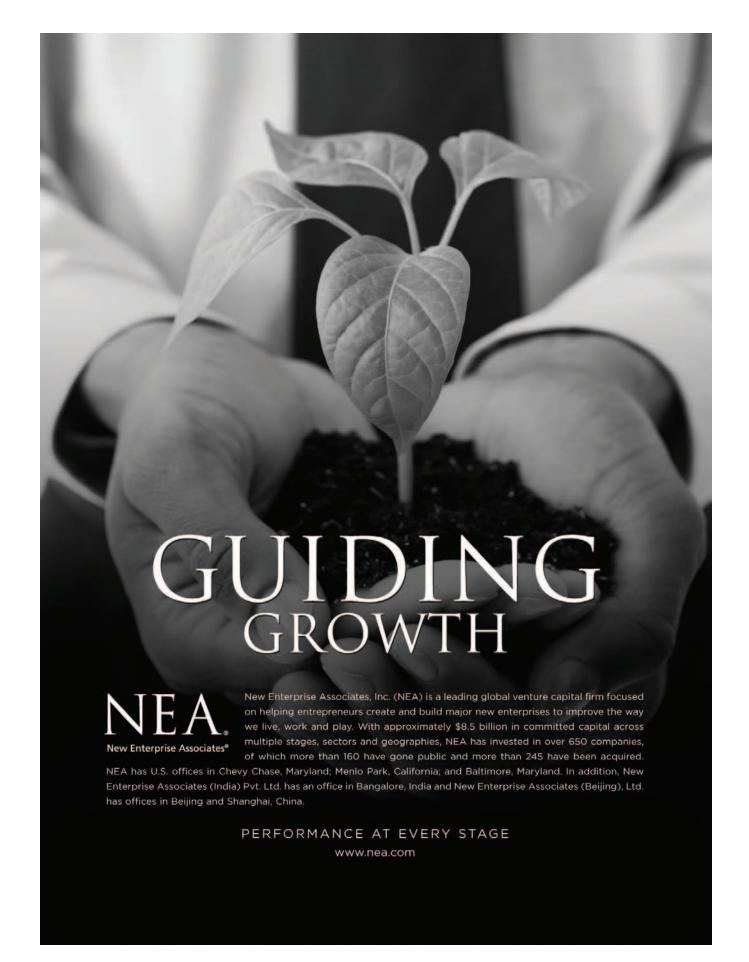
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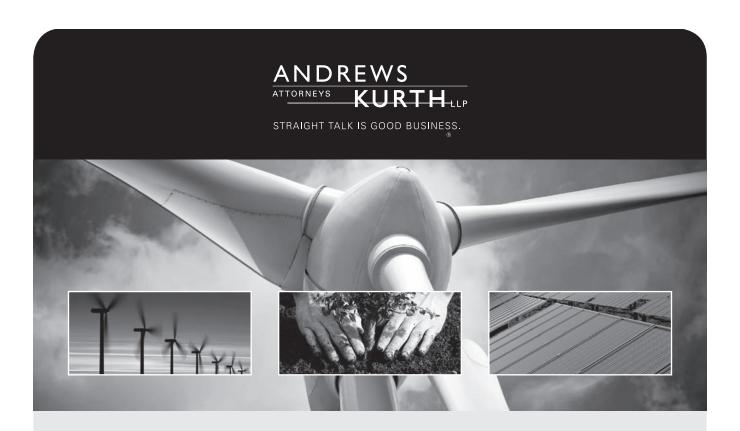
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### 23rd Annual Industry Growth Forum

Andrews Kurth has counseled energy technology companies for more than a century. We counsel energy and clean technology companies, venture capitalists, private equity firms, investment banks, lenders and traders on relevant issues in the clean technology industry. We have deep experience with venture capital, private equity and project finance transactions as well as intellectual property, environmental and regulatory matters in the energy and clean technology sector. Our team is dedicated to the representation of emerging clean technology companies from inception to IPO and beyond. For more information, visit andrewskurth.com.

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Battelle Ventures and its Knoxville affiliate fund, Innovation Valley Partners, have a combined \$255 million under management. The funds invest side by side in all deals, which focus on the energy and environment (E&E), security and health & life sciences sectors.

The E&E portfolio includes investments in solar, energystorage and energy-efficiency technologies, with three companies having emerged from or been further developed by DOE Labs: Aldis, Ampulse and Planar Energy.



#### **Battelle Ventures**

103 Carnegie Center, Ste 100 Princeton, NJ 08540 609.921.1456

www.battelleventures.com



#### www.chrysalix.com

Chrysalix is a venture capital firm providing early-stage, hands-on assistance, and strategic connections to game-changing companies creating solutions for the new energy economy.





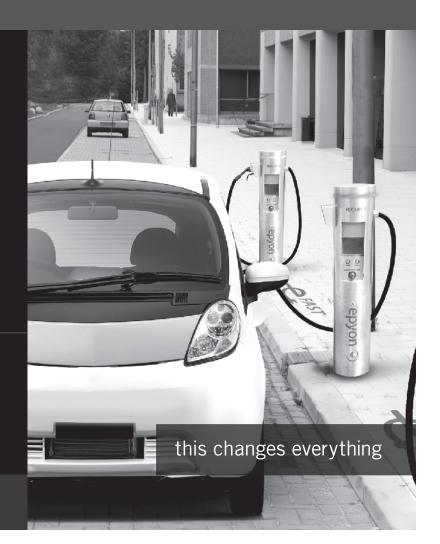




- One of the most active cleantech VCs in the world
- Presence in North America, Europe and Asia
- Unparalleled industry and technology expertise
- Over 100 combined years in venture investing
- Backed by international blue-chip Limited Partners



Chrysalix is a proud sponsor of the 2010 NREL Industry Growth Forum.





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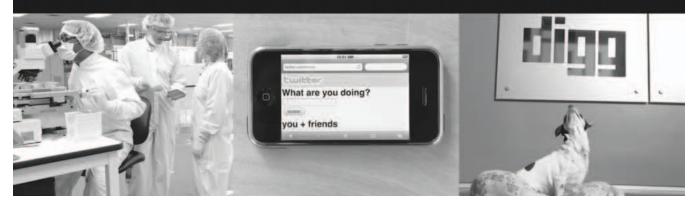
## The world is banking on innovation. And so are we.

Every day Silicon Valley Bank clients push the boundaries of what was previously thought possible. Their innovations make our lives more efficient, connect people across geographies, make our environment cleaner and safer, eradicate disease and improve the quality of life. Their vision for the world will create a better future. We're banking on it.

John China, Head of Venture Capital Group 3000 Sand Hill Road, Building 3, Suite 150 Menlo Park, California 94025 Phone 650.233.4207 E-mail jchina@svb.com

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- An Investing Team Steeped In Energy
- Invested \$1 Billion With Partners in Over 100 Energy Transactions Since 1996
- Closed Five Funds
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- Currently Investing Altira Technology Fund V L.P.
- Partnered With Numerous Strategics, Including Chevron, GE and National Labs



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#### Cooley is the Rocky Mountain Leader in Clean Tech Venture Financing

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Tendril

Infinite Power **Solutions** 

Gevo

Mission Motors

\$104 Million

Company Counsel

\$20.1 Million Company Counsel

\$52.7 Million Company Counsel

Seed Capital

\$17 Million Investor Counsel

Investor Counsel

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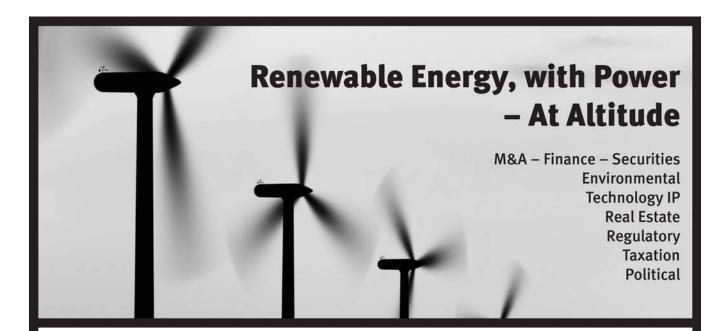


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## Colorado

Office of Economic Development and International Trade



#### Davis Graham & Stubbs LLP

1550 17th St., Denver, CO 80202 - www.dgslaw.com - 303.892.9400

Ryan Arney - Partner John Jacus - Partner



EKS&H's renewable energy practice offers a depth of expertise unrivaled in the Rocky Mountain Region. As Colorado's largest locally owned public accounting and business consulting firm, we offer tailored audit, tax and consulting services to all segments of the renewable energy industry.

To learn more about our philosophy of serving others and building trust, please contact Brent Hendricks at 303.740.9400 or visit us online at www.eksh.com.

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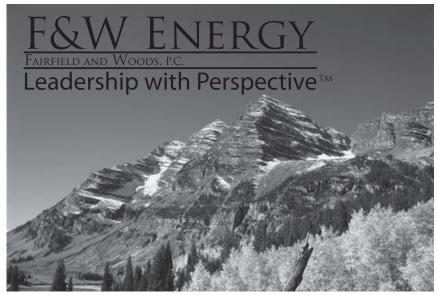
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expertise





From California to New York and Mexico to Canada, we have been counseling businesses with investments in energy since 1934. The Firm represents companies and investors in wind, solar, water, biofuels, nuclear, power management and storage, energy efficiency, photovoltaics, fuel cells, and other clean technologies and projects. Our Team solves problems and makes deals happen through understanding the practical business needs of our clients.

#### **OUR TEAM:**

John Eckstein, Peter Edwards, John Leonard, Joe Dischinger, Jennifer Friednash, Craig Johnson, Craig Joyce, Robert Loeb, Jay Mankamyer, Debra Porter, Eric Preston, and Jason Robinson

#### FAIRFIELD AND WOODS, P.C.

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Good Energies is a leading global investor in renewable energy and energy efficiency industries. The firm invests in solar, turbine-based renewables, green building technologies and other emerging areas within clean energy. Founded in 2001, Good Energies manages the renewable energy portfolio of COFRA, a family owned and managed group of companies.



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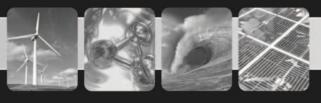
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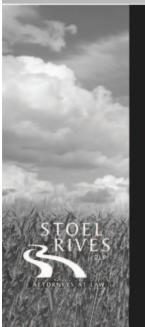
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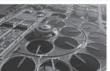
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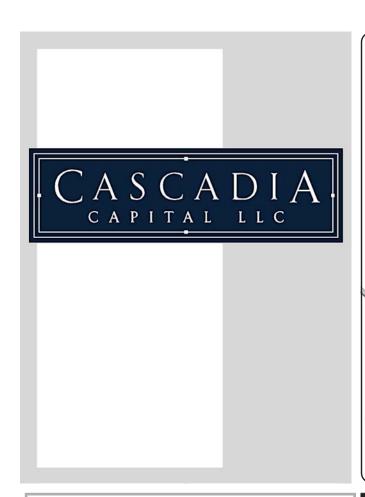
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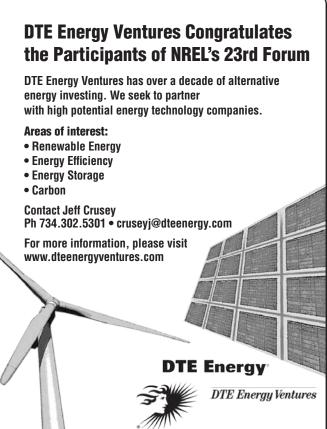






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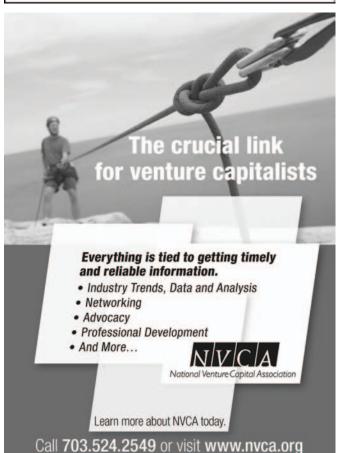


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Nth Power is a venture capital firm with a successful history of funding innovative companies in the energy sector. The firm has \$420 million under management across four funds and is backed by leading institutional investors as well as some of the world's leading energy companies. The investment team has decades of experience in the energy industry and is recognized as a driving force in the sector. Nth Power is based in San Francisco.

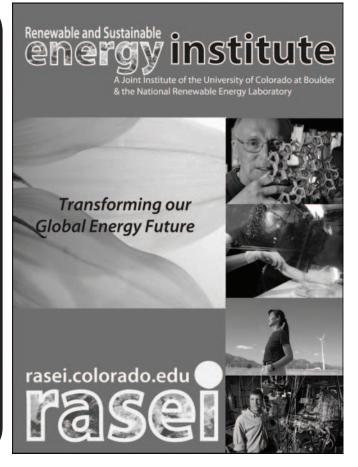
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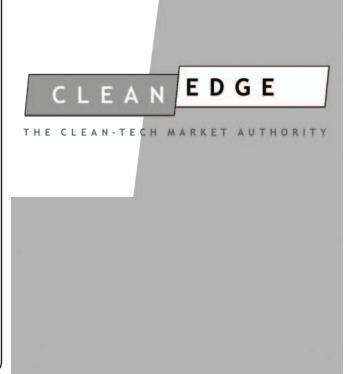


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## NREL - Wilson Sonsini Goodrich & Rosati Venture Awards

The NREL-Wilson Sonsini Goodrich & Rosati Venture Award is the most prestigious designation bestowed by NREL in collaboration with the clean energy investment community. Past winners have cumulatively raised more than \$900 million in growth finance and have gone on to IPOs and market success. The annual Industry Growth Forum has become the national platform for launching clean energy ventures with participants selected amongst hundreds of applicants.

The finalists make a business "venture pitch" to a panel of investors and industry experts who select the recipients of the NREL-Wilson Sonsini Goodrich & Rosati Best Venture Awards.

The competition involves four stages:

- 1. Pre-screening of applications by a panel of more than 120 investors and energy executives
- 2. Mentoring of 34 company finalists selected to present at the Forum
- 3. Judging and selecting the first place award and two outstanding presentation awards
- **4. Announcing winners** at the Awards Luncheon on October 21.

**Criteria:** The First Place award will be given to the clean energy company that makes the best overall presentation and who, in the judges' opinion, has the best chance of future success. To achieve this goal, business presentations are judged according to their attractiveness and potential return on investment.

**Winners** will receive a cash prize and commercialization services from NREL (the first place winner will also receive services from Wilson Sonsini Goodrich & Rosati). A press release will be issued to recognize the winners.

### If you would like more information, contact:

**Robert Writz** 

Senior Project Leader – Commercialization, NREL

E-mail: Robert.Writz@nrel.gov

Office: 303-275-4152

http://www.nrel.gov/technologytransfer/entrepreneurs/entrepreneurs.html

### 2010 Prizes

### **Best Venture Award: \$10,000**

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## 2 Outstanding Venture Awards: \$5,000 each

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### **7Solar Technologies, Inc.**

www.7solartech.com 92-94 Cummings Park Woburn, MA 01801-2125

Phone: 781-574-1348 Fax: 781-574-1349

### **Company Description:**

7Solar Technologies, Inc. was formed in 2009 to commercialize solar air conditioning (SA/C) systems. The company takes a systems approach to solar air conditioning and integrates a liquid desiccant air conditioner (licensed from NREL) with a PV/ thermal hybrid module as an energy source. 7Solar's PVT collectors produce electricity and hot water simultaneously. The hot water provides heating to the desiccant system, which in turn heats a building in winter and cools a building in summer. The outcome of the combined system is lowered operating costs for heating and cooling of a building to effectively zero. 7Solar's team consists of highly experienced system engineers that develop very reliably equipment using a system approach to solving problems. 7Solar is working to license several industry partners' innovations surrounding PVT that will greatly reduce module manufacturing costs. The company designs and sells turnkey SA/C solutions primarily to commercial and industrial customers.

### **Business Strategy/Competitive Advantages/Market Opportunity:**

The air conditioning market is estimated at \$24 billion in the United States. Commercial and Industrial buildings represent 48% of the total energy consumption in the United States. Approximately half of this energy consumption is attributable to air conditioning and space heating and uses about 4.5 Quads of primary energy. 7Solar targets the rooftop packaged HVAC units that provide heating and cooling for 1-3 story buildings, primarily for retail, offices, and grocery chains. Heating and cooling costs are often 70% of a building's operating budget. 7Solar's SA/C replaces rooftop HVAC units with a desiccant chiller and PVT modules. The company's served addressable market is estimated at about \$1.5 billion.

- Desiccant system offsets heating and cooling costs by 50%.
- PVT modules can help offset 100% of the heating and cooling costs.
- Payback period 1-2 years for desiccant only upgrades and to 3-5 years with PVT.
- Financing costs of the SA/C system are less than the energy savings: upgrading saves money.

#### **List of Customers:**

Potential: Active discussions with major defense contractors, telecommunications providers, commercial building property owners, and residential customers. Strategic partnerships are pending with several companies.

### **List of Competitors:**

Several competitors are working on PVT collectors, such as Wiosun (GE), SolarHybrid (GE) and PowerPanel (ON). Others are working on solar air conditioning such as DuCool, Agam, and AlL Research. Chromasun is working on concentrated thermal + absorption chiller.

### Presenting Executive: Peter Vandermeulen, M.S., M.B.A.

Phone: 978-270-3972 Email: peterv@s7solartech.com

Vandermeulen started 7Solar in 2009 and has filed a number of patents around 7Solar's SAC systems. He has an M.S. in physics and an M.B.A. from Babson College. He has commercialized several technologies for semiconductor manufacturing for Varian and automation products for Brooks Automation and holds nine patents in this field. He has raised \$26 million for BlueShift Technologies, a robotics company he started in 2003.

### **Key Management:** Number of Employees: 4

Peter Vandermeulen, President and CEO. See Presenting Executive above

Jack Hanoka, Solar PV Specialist and Materials Scientist for 35 years with 56 patents in solar

Art Laflamme, Engineering Manager. Capital equipment expert in the semiconductor space for 30 years

Eric Graham, Business Development. Clean energy business development for Fraunhofer and Enernoc for 20 years Steve Young, Board Member and advisor. Carrier Air Conditioning sales and marketing for 30 years

Last 12 months revenue: \$1,800	Financing sought: \$5,000,000
Outside equity investment to date: \$260,000 Founders; \$200,000 EERE pending	Status: Early Stage

### brightLeaf Technologies, L.P.

www.brightleaf.us.com Montrose, CO 81402

Phone: 970-249-4505 Fax: 970-249-4498

### **Company Description:**

brightLeaf Technologies, Inc. (brightLeaf) [formerly Aquasoladyne Partners, L.P.], a Delaware corporation, was formed in early 2008 to pursue development of concentrated solar electrical generating systems for residential and light industrial applications. brightLeaf has built working prototypes of solar thermal and concentrated photovoltaic systems. Concentrated photovoltaics (CPV) give great promise of being simple, reliable and cost effective. brightLeaf's proprietary technology gives it the inside track on becoming the lowest cost producer in the CPV industry. brightLeaf has designed a proprietary geometry to concentrate the power of 650 suns on a 5.5 X 5.5 mm. cell. Its concentrator is a non-parabolic stamped, patent-pending aluminum "leaf" (about 7" by 4") with auto-aligning geometry. The system essentially utilizes 100% of the sunlight which enters its boundaries, since there are neither gaps nor shadows in the system (patent pending). This proprietary design gives the brightLeaf system the greatest system efficiency in the solar marketplace.

### **Business Strategy/Competitive Advantages/Market Opportunity:**

Solar is still a comparatively expensive technology and, as such, should be directed toward customers paying the highest tariff for existing electricity in order to generate maximum cost avoidance. Decentralized solar production minimizes cost and efficiency loss due to transmission. brightLeaf's entry product is directed primarily toward residential and light commercial applications in high tariff locales. Its ease of installation and portability give it a major advantage in these applications. brightLeaf starts with a price point 25% below conventional PV and with a footprint 60%+ smaller. brightLeaf is in active negotiations for market development with its local electric utility, an innovator in energy conservation and alternative energy. This would be a template for working relationships with other rural electric coops, most of whom have limited exposure to alternative energy, higher than average tariffs and impending renewable mandates. brightLeaf is seeding product into strategic markets such as the military, telecommunications, resorts, municipal facilities, and native American nations. brightLeaf anticipates that manufacturing efficiencies will reduce its costs down by 40-50% in the next three years, widening the markets where its system makes economic sense.

### **List of Customers:**

Entry: DMEA, City of Montrose, NEST Energy, Colorado Mountain College, Naturita Library

Potential: Rural electric co-ops, municipalities, green neighborhoods, mountain west agri-business, resorts, military, hospitals, universities and developing world markets (telecoms, non-government organizations)

### **List of Competitors:**

There are several companies developing CPV for large commercial/utility grade applications, but brightLeaf. brightLeaf is aware of no current competitors in the residential/small commercial CPV market.

### **Presenting Executive: Doug Kiesewetter**

Phone: 970-249-4505 Email: doug.kiesewetter@brightleaf.us.com

Kiesewetter has functioned as a serial start-up entrepreneur for 35 years. He has a bachelor's degree in history from Emory University (magna cum laude and Phi Beta Kappa) and an M.B.A. from the University of North Texas in Accounting with a concentration in taxation.

### **Key Management:** Number of Employees: 17

Doug Kiesewetter, CEO. See Presenting Executive above

James VanderMey, Ph.D., Computer Scientist. Founded Integral Data Systems

Last 12 months revenue: \$0	Financing sought: Second Round
Outside equity investment to date: \$5,500,000	Status: Early Stage

### Clarian Power, Inc.

www.clarianpower.com Seattle, Washington Phone: 206-604-8505

### **Company Description:**

Clarian is a privately held company incorporated in 2008. Clarian has developed a plug-in power module that allows homeowners to plug solar and wind power into an existing outlet without the expense and hassle of larger turn-key systems. Unlike existing micro-inverters which require a dedicated circuit and electric panel, Clarian's patent-pending SmartBox™ technology provides built-in circuit protection and converts your existing household wiring into a flexible plugn-play power bus.

### **Business Strategy/ Competitive Advantages/ Market Opportunity:**

The \$6 billion U.S. solar market is expected to grow more than 300% by 2015. Of this market, Clarian has targeted two key market segments: residential and business property owners looking to either install their first solar or wind power system, or upgrade an existing solar or wind power system - with an estimated total market of 10 million units in the U.S. by 2015, with more overseas.

Competitive Advantage:

- Does not require a dedicated circuit or electrical panel; eliminates parade of contractors and installers
- Portable and plugs into any existing outlet; up and running in 1-2 hours
- Power that can be use anywhere in the home
- Lower monthly power bill with payback in 3-5 years, for the same cost as a household appliance

### **List of Customers:**

Current: product still in development and testing

Potential: home owners, small businesses; solar and wind power installers and distributors

### **List of Competitors:**

There is currently no 120V portable plug-n-play solar or wind solution offering today in the market; potential competitors include: Akeena Solar, Ready Solar and Green Ray Solar. Far from being competitive, large installer/solar financing companies such as Solar City, SunRun, REC Solar are potential distribution outlets.

### **Presenting Executive: Chad Maglaque, President**

Phone: 206-604-8505 Email: chad@clariantechnologies.com

Maglaque is a successful entrepreneur with nearly 20 years of product management experience developing product strategy and award winning technologies working for Microsoft Hohm, RealNetworks and Accenture. Maglaque's background is in building automation and he is currently co-chair of smart-grid device standards for NAESB. He holds a Masters Degree in Energy Management and Commerce (Sorbonne) and a B.A. in Economics and Statistics (McGill).

### **Key Management:** Number of Employees: 5

Chad Maglague, President. See Presenting Executive above

Erik Fretheim, Vice President, Engineering. Over 20 years of experience managing product development teams; proven track record meeting product milestones and bringing products to market for MCI, Siemens and Peek Traffic; Ph.D. in Electrical Engineering; Associate Professor at West Point

Kurt Wrisley, Director of Operations. Skilled manufacturing and operations leader with 20 plus years' experience across consumer products, OEM, aerospace and automotive industries; Vendor management and launch of Xbox 360; B.A. Finance, M.B.A.

Dell Keehn, Strategic Advisor. Incubation of numerous energy efforts, including 35 years of experience in renewable energy and working with utilities

Kelly Jo MacArthur, Strategic Advisor. General Counsel, M&A; Harvard Law School

John Parkey, Technology Advisor. Engineering and Applied Physics at Duke, Cambridge, Stanford

Last 12 months revenue: product still in development	Financing sought: \$900,000
Outside equity investment to date: self-funded	Status: Early Stage

### **Clean Power Finance**

www.cleanpowerfinance.com 222 7th Street, 2nd Floor San Francisco, CA 94103

Phone: 866-525-2123 Fax: 415-962-4087

### **Company Description:**

CPF enables mass market adoption of solar and energy efficiency. CPF's SaaS platform delivers strategic go-to-market capabilities to the enterprise. CPF delivers a unique integrated software and services solution to the residential renewable energy and energy efficiency enterprise. The business management platform allows contractors to easily obtain leads, manage customers, model energy usage and production, create customized sales proposals and submit applications for financing. Revenue is comprised of monthly S/W subscription and fees from sale of transactional products and financing. The company was formed in 2007 by Gary Kremen and is owned by the founder, employees, and outside investors.

### **Business Strategy/ Competitive Advantages/ Market Opportunity:**

CPF's strategy is to deliver solutions to supply chain players including manufactures, distributors and direct to contractors in the solar and energy efficiency markets. CPF will cross sell our solutions into a variety of distribution channels such as electrical and roofing distributors and contractors and will continue to add market specific solutions that we monetize across those channels attacking the solar and energy efficiency markets. CPF has the only integrated solution and the broadest market adoption. The databases are complex and incorporate significant domain expertise. CPF has IP for finance and other monetizable products in the pipe. Markets include solar PV, solar hot water, and energy efficiency that today have 300,000 professionals in the U.S. and reached \$24.5 billion in 2009. Additionally there are 1.6 million trades people poised to enter the renewable energy and energy efficiency market in response to a down housing market and heavy Federal and state stimulus. Potential opportunities to expand internationally exist in Australia and Europe.

### **List of Customers:**

Customers/partners include Suntech, BP Solar, Conergy, Solar Depot, Real Goods, REC Solar, SPG, and many others.

### **List of Competitors:**

Silo competitors exist in the lead generation, software, and financing spaces. Most lead firms become our partners, as they benefit from our large footprint. There are 3 software competitors we know of (OnGrid, QuickQuotes, PVOptimize) who offer inferior products; we displace them regularly. Finance options include SunRun and Sungevity and we look to partner. As financing becomes ubiquitous we will integrate and offer best of breed solutions.

### Presenting Executive: Joseph Brakohiapa, CEO/President

Phone: 866-525-2123 x4843 Email: jbrakohiapa@cleanpowerfinance.com

Brakohiapa has 20+ years of successful business leadership and general management experience. He has held executive management positions with corporate responsibility in North America, Europe, Middle East, and Africa regions. He has extensive experience in business development, sales distribution and channel marketing for early-stage ventures and large blue chip companies.

### **Key Management:** Number of Employees: 4

Joseph Brakohiapa, CEO/President. See Presenting Executive above

Adam Marsh, CTO. 20 yrs technology entrepreneur, co-founder Coactive Networks

Dan Poore, VP Sales. 25 yrs technology and energy finance. HP, Sun, Avcom & Solar Power Partners

Spencer Carlsen, VP Operations. 25 yrs in financial operations and consumer lending, B of A, Irwin Home Equity

Last 12 months revenue: (\$1,193946)	Financing sought: \$5,000,000
Outside equity investment to date: \$3,000,000 Founder/ Venture	Status: Early Stage

### **Eco Power Solutions**

www.ecopowersolutions.com 1266 Furnace Brook Pkwy Quincy, MA 02169

Phone: 1-888-213-2543

### **Company Description:**

Founded in 2006 and headquartered near Boston, MA, Eco Power Solutions delivers the world's most advanced turnkey multi-pollutant, emission control and energy recovery technology, the COMPLY 2000°. The air quality emissions performance standards for the COMPLY 2000° are well in excess of best available control technology (BACT) and government mandates. The patented ozone technology of the COMPLY 2000° provides a greater than 96% reduction in emissions (SOx, NOx, Hq, Particulate – PM 10 & PM2.5), along with a 10%-25% reduction in CO<sub>2</sub>. Additionally, The COMPLY is capable of generating supplementary energy by recovering waste heat that normally escapes into the atmosphere, thus providing further significant reduction in operating costs easily achieve industry's stated objective of a 15% – 25% ROI.

### **Business Strategy/Competitive Advantages/Market Opportunity:**

The COMPLY's ability to concurrently capture all major emissions and recover significant waste heat, its small footprint, low manufacturing cost and low OPEX provides for extremely attractive paybacks to industrials and utilities. The technology enables new and existing power plants and industrial manufacturers to meet environmental requirements in a costeffective manner and is suitable for both retrofit and greenfield projects alike. Capex is 80% of traditional technologies with Opex being 70% of incumbent technologies.

### **List of Customers:**

Sales pipeline of 50+ companies; the top 10 represents >\$200 million

Pipeline Breakout by markets: Power Generation – 55%, Steel & Aluminum – 30%, Petro Chemical – 5%, Glass & Cement – 5%, Paper & Pulp – 5%

### **List of Competitors:**

No technology has been identified in the market that addresses BOTH multiple pollutant controls AND provides a waste heat recovery technology all in one system.

Heat Recovery: Traditional heat exchangers and waste heat boilers have nominal impact on the bottom-line and no emissions reduction capability.

Emissions: Traditional SCR / FGD scrubbing equipment have a higher capital cost, higher operating costs and lower levels of emissions reduction. Also this equipment has no heat recovery capability. Carbon Storage / Sequestration, which represents an unproven science, is cost prohibitive and poses significant geological storage challenges.

### **Presenting Executive: Tom Thompson, CEO**

Phone: 617-328-3101 Email: tom.thompson@ecopowersolutions.com

A world class leader with a proven record building successful organizations and leading companies to drive rapid profitable growth, Thompson has led the Company since 2004. Background includes executive leadership roles in a variety of corporate finance companies including Capital Business Management Group Canada Trust, The Royal Bank of Canada and First City Trust Company.

#### **Key Management: Number of Employees: 10**

Tom Thompson, CEO. See Presenting Executive above

Wayne Littleford, President & CTO. Inventor of the COMPLY 2000 unit, Aspirator and O3 Generator technologies

Christine Frieze, CFO. 25 years of experience in financial management and strategic planning

Kevin Crapsey, VP Sales & Marketing. 15 years in sales, marketing and management in energy and environment companies Sanjeev Jolly, VP Engineering. Over 20 years of experience in power industry including design, performance testing and sales

Last 12 months revenue: Less than \$5 million	Financing sought: Series B, \$5-\$10 million
Outside equity investment to date: \$10,000,000	Status: Early Stage

### ElectraTherm, Inc.

www.electratherm.com 4750 Turbo Circle Reno, NV 89521

Phone: 775-398-4680 Fax: 775-398-4674

### **Company Description:**

ElectraTherm, Inc. is a privately held corporation formed in 2005 in Carson City, Nevada. ElectraTherm delivers distributed heat-to-power solutions that make electricity from low temperature heat (190-240F). In 2010, ElectraTherm completed its CE Certification, moved its headquarters to a 53,000 sq. foot facility in Reno, Nev., and built an advanced new test cell. With 11 units in the field, ElectraTherm is first to market with a modular system below 250 kW at a time when energy efficiency and distributed generation are receiving significant market pull.

### **Business Strategy/ Competitive Advantages/ Market Opportunity:**

Business Strategy: ElectraTherm's business model is centered on capital efficiency: lean, flexible and scalable. ElectraTherm has productized a 30-50 kW solution for the heat-to-power market, a large and relatively untapped opportunity.

Competitive Advantages: ElectraTherm's Green Machines are small, modular and use low temperatures. The twin screw expander technology enables a differentiated solution, opening new markets due to cost and reliability advantages for small scale, distributed heat-to-power applications. The patented expanders are built on millions of hours of compressor operation, providing a robust solution. Unlike radial or axial turbine ORCs, the twin screw expander maximizes output on wet vapor, not requiring 100% superheated vapor. The twin screw expander also operates without a turbine's expensive gear boxes or electronics and eliminates the need for a traditional oil pump, tank, lines and filter, and associated maintenance.

Market Opportunity: The primary target market is stationary reciprocating engines. Typical sites include: gas compression stations, landfill gas, renewable biofuels such as palm oil in Europe, and general power distribution in remote areas – 10's of thousands of such engines in the 1-2 MW size are deployed worldwide. ElectraTherm's products are also applicable to many alternative energy systems, particularly biomass, geothermal, oil & gas co-produced fluids, and solar thermal.

### **List of Customers:**

ElectraTherm has 11 demonstrations in the field and are targeting several more in the U.S., all with pull through potential. ElectraTherm is establishing a global dealer network to reach customers. With our initial product and market entry strategy, our ideal dealer is a stationary engine service provider that owns either the engines themselves or the relationship with the end user. These dealers have sell-through potential for hundreds of units.

### **List of Competitors:**

Competitive efforts in the heat-to-power market focus on 250 kW - 1 MW+ systems and most employ radial and axial turbines. The largest competitor in the < 1 MW class is United Technologies Corp. (UTC), whose 250 kW PureCycle® has sold primarily within geothermal applications. Smaller competitors include Calnetix, Ener-G-Rotors, Infinity, WOW Energy and Global Energy.

### **Presenting Executive: John Fox, CEO**

Phone: 775-398-4680 Email: jfox@electratherm.com

John Fox recently joined ElectraTherm as CEO from United Technologies Corporation's Pratt & Whitney Power Systems Division, where he was Director and General Manager of the Organic Rankine Cycle (ORC) Business, ElectraTherm's largest competitor.

### **Key Management:** Number of Employees: 29

John Fox, CEO. See Presenting Executive above

Steve Olson, President & CFO. Founder/operator experience with start-ups for 15 years

Rob Emrich, VP Sales. Sales leadership in industrial equipment industry

Hans Wain, VP Product Development. 30 years of product design and development

Last 12 months revenue: \$794,815.01	Financing sought: \$6 million
Outside equity investment to date: \$16 million	Status: Early Commercial Stage

### **Emissions Technology, Inc.**

www.emissionstech.com 360 Garden Oaks Blvd. Houston, TX 77018

Phone: 713-691-1211 Fax: 713-691-1230

### **Company Description:**

Emissions Technology, Inc. (ETI) manufactures a pre-combustion catalytic combustion system branded as UltraBurnTM that improves the combustion efficiency of diesel engines, thereby dramatically reducing fuel consumption and emissions and extending engine life resulting in significant savings to the diesel equipment owner/operator. ETI's primary focus is on the North American off-road diesel engine market and international large diesel engine markets. The company's business plan is based on an expectation of recurring revenue through the replenishment of catalyst used in our delivery systems, the classic razor/razor-blade model. ETI was incorporated in 2003 in Delaware and is presently headquartered in Houston, Texas. ETI is a private company owned by numerous shareholders, both domestic and foreign.

### **Business Strategy/Competitive Advantages/Market Opportunity:**

Over the next five years, ETI will receive revenue from two primary income streams: dealer/distributor sales and direct sales to large national/international end-users. The global market space consists of more than 250 million large diesel engines that could benefit from ETI technology defined by thirteen key market segments. ETI is focusing its Dealers and its Direct sales efforts on those critical few markets that will have the greatest near-term impact on ETI's bottom line, while simultaneously providing entry into the other markets. Unlike fuel additives or post-combustion filters, ETI's UltraBurn Combustion Catalyst System injects an aerosol platinum-based catalyst directly into the engine air intake of a diesel engine ahead of the turbo. The catalyst is carried into the combustion chamber with the air where it catalyzes the combustion reaction resulting in more efficient and complete combustion during the power stroke. More of the normally unburned fuel is converted to useful energy in the engine, reducing fuel consumption and lowering black smoke and other emissions. Many large diesel engine end-users can recover the cost of their investment in a matter of weeks from the cost savings due to fuel reduction. ETI's products are protected by patents on both the delivery system and catalyst formulation. In addition, ETI was granted two new patents in 2009 on a new generation delivery system and has applied for patents on a new direct injection technology and on new catalyst formulations for ultra large diesel engines.

### **List of Customers:**

Current: Crosscurrents, EmTech NW, Shell Offshore, DHS Industries.

Potential: Oil and gas majors, drilling rig companies, marine, power, construction, locomotive, military.

### **List of Competitors:**

ETI competes against fuel additive manufacturers who have built a very poor reputation in the industry with spurious claims of large fuel savings. ETI's pre-combustion technology can work well with post-combustion technologies such as diesel particulate filters.

### Presenting Executive: Mark J. Spoon, President/CEO

Phone: 713-691-1211 Email: mark.spoon@emissionstech.com

Mark Spoon holds an MS in Chemical Engineering and an MS in Chemistry from University of Colorado, and has had 35 years in technology development, business development, and international management with ConocoPhillips, TRW, Inc., and energy management consulting.

### **Key Management:** Number of Employees: 12

Carl Ranno, General Counsel/Business Advisor. Forty years of international legal and business startup experience Lee Wiley, Sales. More than 40 years of executive experience startup and operations experience of small businesses William Hardy, Business Development. Formerly with Stewart Stevenson; 33 years in diesel engineering and sales Gary Lawson, Manufacturing. Forty years in international manufacturing and design George Malouf, Technology. 35 years in chemicals, catalysis, and systems development

Last 12 months revenue: \$115,500	Financing sought: \$6,000,000
Outside equity investment to date: \$3,500,000 (done)	Status: Later Stage

### **Energy Materials Corporation**

4540 Berkeley Lake Road Norcross, GA 30071 Phone: 315-247-0880

### **Company Description:**

Energy Materials Corporation (EMC) was formed in 2010 to develop and commercialize high efficiency solar photovoltaic products based on a transformational technology using low cost polymer films. EMC's proprietary technology uses nanoscale antenna and molecular diode structures made from conducting polymers to transform light into electric power. The technology was patented by the late Alvin Marks, a noted scientist and prolific inventor. With very high conversion efficiencies (>50% CE) and manufacturing costs at pennies per Watt peak, EMC products will be able to produce electricity, without government subsidies, at a cost competitive with fossil fuel combustion. EMC is a privately held Delaware C-corporation in the early development stage. Gerard J. Aitken IV, heir to Marks' technologies, transferred ownership of the intellectual property to EMC. The IP includes patents, trademarks, and numerous disclosures ready for follow-on filings and extensive notes and recipes from Marks' files. Scott and John worked with Marks in developing tools and processes for manufacture of polarizing films.

### **Business Strategy/ Competitive Advantages/ Market Opportunity:**

EMC intends to develop, manufacture and sell high efficiency photovoltaic polymer films (LumeloidTM) for use in a wide variety of electric power generation applications, including large scale power generation, residential and industrial uses both on and off grid, and building integrated (BIPV) applications. Rather than developing individual end use products for each application, EMC intends to provide LumeloidTM films to strategic customers who have the capabilities to develop, manufacture and distribute end products on a world-wide basis. In order to catalyze development and minimize fixed costs, EMC has partnered with world-class institutions to carry out the initial development work, including U. Albany's College of NanoScale Engineering, Clarkson University's Center for Advanced Materials Processing and Fraunhofer USA.

### **Customers:**

- Major industrial suppliers will purchase LumeloidTM and produce module systems
- OEMs will purchase LumeloidTM and integrate it into end-use products
- Building materials manufacturers for BIPV Applications
- DoD Suppliers for military applications
- System integrators and utility contractors will purchase finished modules from EMC's customers

### **Competitors:**

There are a number of early stage companies working on next generation PV technologies, but our initial competition will be already existing low-cost PV manufacturers and the infrastructure that has been built up around those technologies. Being first to market is critical for this technology.

### Presenting Executive: Stephan DeLuca, Ph.D.

Phone: 315-247-0880 Email: delucastephan@gmail.com

Senior executive versed in technology with over 20 years experience developing new products and businesses; previous experience as CEO of a publicly traded PV company.

### **Key Management:** Number of Direct Employees: 2

J. Peter Lynch, Chairman. Co-founded five venture-backed companies and has 30 years experience in senior corporate management position, M.B.A.

Stephan DeLuca, President & CEO. See Presenting Executive above

Pradeep Haldar, Technical Support Lead. Professor and Head, Nanoengineering Constellation, College of Nanoscale Engineering at SUNY Albany, Ph.D., M.B.A.

Sitaraman Krishnan, Chief Scientist. Assistant Professor, Clarkson University Center for Advanced Materials Processing, Ph.D. Status: First Stage Development–1 year to initial prototype Financing sought: \$1,000,000

Last 12 months revenue: product still in development	Financing sought: \$900,000
Outside equity investment to date: self-funded	Status: Early Stage

### Enertag, Inc.

www.enertaq.com 8005 Ashboro Ct. Chevy Chase, MD 20815

Phone: 240-603-9627

### **Company Description:**

Enertaq, Inc. is a privately held corporation started in October 2009 and incorporated in April 2010 by Max Epstein and John Silberholz. Enertaq is pioneering a disruptive IT-based service that will allow commercial buildings to painlessly participate in organized markets for the most lucrative electricity grid reliability service—frequency regulation— from the demand side for the first time. The company's system leverages existing control networks in commercial buildings and an inherent flexibility in the timing of power demand in heating, ventilation, and air conditioning (HVAC) systems over short timescales (seconds-to-minutes). Like traditional "demand response" (DR) companies, which pay buildings for energy curtailment, Enertaq will offer buildings payments from grid authorities for helping to maintain grid reliability. However, the company's unique ability to serve the lucrative frequency regulation market from demand management will allow them to offer enrolled buildings two to nine times higher payments than traditional DR providers. Enertaq has filed two provisional patents for its system of providing frequency regulation via aggregated demand response, and protects its optimized dispatch algorithm by trade secret.

### **Business Strategy/Competitive Advantages/Market Opportunity:**

By developing an IT-based service which leverages existing control infrastructure, Enertaq can serve the \$2 billion spent annually on frequency regulation in the U.S. at dramatically lower costs than existing or next-generation suppliers. Enertaq will go to market in the Mid-Atlantic PJM RTO—the largest electricity market in the world—enrolling buildings by targeting multi-site businesses and partnerships with building management system vendors. Enertaq's advantage over other DR companies lies in the significantly higher payments they can offer enrolled buildings, by bidding them into frequency regulation markets in addition to "capacity" markets for peak-load curtailment.

#### List of Customers:

Current: Enertaq has an upcoming pilot with an international energy management system (EMS) vendor, and is engaged in ongoing discussions with another international EMS vendor and an international retailer about additional pilots. On the electricity grid side, the company is registered with PJM as a "special member – demand response."

Potential: Any commercial buildings with "packaged" HVAC systems, including retail stores, restaurants, hotels, small office buildings, distribution centers, and multi-unit residential. Potential customers on the grid side include other ISO/RTOs, traditionally regulated U.S. utilities, and international utilities/grid authorities.

### **List of Competitors:**

The market for frequency regulation is served virtually exclusively by fossil and hydro power plants. Next generation energy storage companies such as Beacon Power and A123 Systems are moving into the frequency regulation market, though with radically higher capital costs/MW than Enertaq's IT-based approach. Enertaq will also compete with existing DR companies for electricity demand management contracts with commercial buildings, though no DR providers currently provide frequency regulation service from (or payments to) commercial buildings.

### Presenting Executive: Max Epstein, CEO

Phone: 240-603-9627 Email: mepstein@enertag.com

Max Epstein (B.A. Economics, UMD 2009, cum laude) has been studying electricity markets for three years and has successfully negotiated pilot agreements with top executives at a large international retailer and an international building controls company.

### Key Management: Number of Employees: 5

Max Epstein, CEO. See Presenting Executive above

John Silberholz, CTO. Seven technical publications in operations research and parallel computing

Last 12 months revenue: \$0	Financing sought: \$500,000
Outside equity investment to date: \$0	Status: Early Stage

### **Enovative Kontrol Systems**

www.enovativegroup.com 242 Hampton Dr Venice, CA 90291

Phone: 541-366-8283 Fax: 866-244-8639

### **Company Description:**

Enovative Kontol Systems (EKS) is a privately held corporation that was formed in 2006. EKS manufactures advanced controls for central domestic hot water systems found in multifamily and multi-unit commercial buildings. The proprietary technology controls both the temperature of the water heater and the operation of the recirculation pump based on demand for hot water in the building. Applying this sequence of operation produces energy savings that result in a quick payback, often within 1 year, and reduces system wear and tear. EKS is already successful as an early stage company and is ready for rapid growth. Initial funding has resulted in the achievement of the following milestones: Product taken out of beta testing and ready for mass distribution; 1,000 customers in Southern California; incentive programs from Southern California Gas Company; and inclusion into the 2011 building code revisions for the states of California and Oregon. EKS has been directly selling the product to the end-user and is in the process of establishing distribution channels through ESCO's, system integrators, and sustainability consultants.

### **Business Strategy/Competitive Advantages/Market Opportunity:**

EKS is focusing on the following market segments: Multifamily Housing, Lodging, and MUSH (Municipal, University, Schools, and Healthcare). These segments represent close to 2,000,000 buildings that spend ~\$10 billion annually on water heating energy costs. These segments have the attributes that will benefit the most from EKS's product offerings. EKS is able to reduce energy costs by up to 30%, on average between 15% and 20%. This represents thousands of dollars per year in energy savings as well as thousands more in reduced maintenance costs.

### **List of Customers:**

Current: ~1,000 units installed to date, purchasing companies include: Archstone, Equity Residential, City Of Anaheim, Marriott Vacation Club and many more.

Potential: Include Bascom Group, Black Rock and other large REIT's.

### **List of Competitors:**

The competitive landscape for pump controls is minimal with timers and temperature regulators on the pump being offered by any pump manufacturer such as Grundfos and ITT. Companies that have boiler controls include EDC Technologies, Pro-Temp, Energy, and Equity Thru Energy. No other company offers the combination of water heating controls and pump controls or has the proprietary water heating system optimization strategies that EKS is able to implement.

### **Presenting Executive: Gabriel Ayala, Business Development**

Phone: 541-366-8283 Email: Gabe@enovativegroup.com

As Southern California Edison's liaison for the retrocommissiong program, Ayala is able to build the bridge that connects a potentially non-technical customer with the advanced engineering involved in energy projects, especially for large commercial buildings. He is responsible for over 20 million kWh of energy savings through customer- focused efforts.

### **Key Management:** Number of Employees: 4

Derek Zobrist, CEO. Member of a C.E.C. PIER advisory committee; Certified Energy Plans Examiner (CEPE); experience starting multiple businesses. Entrepreneurial awards recipient

Larry Acker, CTO. Executive Vice President, Sunbeam Appliances; National awards recipient and inventor of many energy and water conservation products in the U.S. and Australia; instrumental in plumbing designs currently used in all residential and commercial buildings. Authored numerous hot water savings articles

David Zobrist CFO. CPA; Financial Analyst for JP Morgan; Senior Auditor for Deloitte; Financial Analyst at a management consulting and investment banking company specializing in mergers, acquisitions, capital raising and financial forecasting

Last 12 months revenue: \$900,000	Financing sought: \$910,000
Outside equity investment to date: \$190,000 Grant	Status: Early Stage

### **Ideal Power Converters, Inc.**

www.idealpowerconverters.com 5004 Bee Creek Rd., Suite 600 Spicewood, TX 78669

Phone: 512-801-3679

### **Company Description:**

Ideal Power Converters, Inc. (IPC) technology dramatically reduces the weight and cost of power converters for applications including photovoltaic, wind, battery, and AC motor control. IPC has received two U.S. patents and has several U.S. and international patents pending.

IPC has licensed its technology to Lockheed Martin and is developing micro-grid converter systems for the United States Army, Lockheed Martin and IPC are also cooperating on licensing the technology to commercial automotive suppliers for hybrid/electric vehicles. This agreement includes significant near-term development revenues and long term royalties. The development revenues are a non-dilutive funding source for IPC's core research and development expenses.

### **Business Strategy/ Competitive Advantages/ Market Opportunity:**

IPC will develop and sell commercial-scale PV inverters for the U.S. market. IPC's patented topology provides superior product performance. IPC initial inverter is less than one-tenth of the weight and less than half of the manufacturing cost of competing PV inverters of similar power. The IPC unit also has 1/3 lower power losses and will provide improved reliability due to elimination of all electrolytic capacitors and other high reliability design improvements.

### **List of Customers:**

U.S. PV distributors (Solar Depot) and large installers.

### **List of Competitors:**

Satcon, PV Powered/Advanced Energy Systems

### Presenting Executive: Paul Bundschuh, VP of Business Development

Phone: 512-801-3679 Email: paul.bundschuh@idealpowerconverters.com

Mr. Bundschuh began several successful businesses (Motorola/Freescale Semiconductor, Waves Audio) as a signal processing solutions supplier (semiconductors and licensing) in consumer electronics. He is helping IPC create an industry transformation applying its new signal processing technology in electronic power converters for photovoltaic and other applications.

#### **Key Management: Number of Employees: 6**

Bill Alexander, P.E., CEO (acting), CTO, Founder, Inverter. More than 30 years of development experiences, and more than 12 patents

Charles De Tarr, CFO. More than 30 years as CFO or VP Finance including experience at AEP

Paul Roush, P.E., Director Hardware Engineering. Sr. Product/Pgm Manger for \$3billion business at Sun Microsystems Mike Barron, Director Software Engineering. Director of Engineering for ClearCube

Last 12 months revenue: \$350,000	Financing sought: \$400,000
Outside equity investment to date: \$200,000 friends/ family \$1,000,000 Texas ETF (convertible debt)	Status: Early Stage

### Incenergy, Inc.

www.incenergy.com 1135 W. 6th St. Suite 140 Austin, TX 78703

Phone: 512-327-2020 Fax: 512-532-0746

### **Company Description:**

Incenergy is a Smart Grid software company and systems integrator; leveraging cloud computing and low-cost wireless networked devices, to produce cost-effective and hardware-independent building energy management solutions and reduce peak electricity demand for utilities. Consumers lack the tools necessary to use electricity efficiently. Utilities lack the tools needed to implement efficient dynamic rate structures. Incenergy provides consumers with transparency into their electricity usage and pricing, as well as convenient tools for managing energy consumption. The result is significant energy savings. For the utility, this transparency and control facilitates dynamic pricing programs that more accurately reflect the costs of peak generation and transmission capacity, and enables dispatchable, targeted load-shedding. Our partnership with a nation-wide distribution network of local retail storefronts and certified installers empowers the scale-up to thousands of connected SmartNode™ endpoints—creating real-time dispatchable Virtual Power Plants.

### **Business Strategy/ Competitive Advantages/ Market Opportunity:**

Incenergy has partnered with multiple hardware vendors and secured a national distribution channel with DSI Systems to target the commercial and residential building market and develop pilot programs with utilities and electric cooperatives. An Incenergy EMS can provide consumption transparency that enables optimized electric load scheduling and energy savings. This reduces the operating costs of a building and increases its valuation. During peak demand periods, utilities experience G&T and grid reliability pain and often rely on volatile spot market power purchases. The ability to curtail aggregated electrical loads mitigates these problems. We are starting in the TX, OK, LA, AR market, where there are 542,000 commercial buildings <100,000 ft2. Estimated market size: \$1.5 billion. Next, we will expand into the >\$14 billion national market. We will then leverage this experience to engage community owned utilities seeking to mitigate peak Generation and Transmission costs with Demand Response (DR) capability.

### **List of Customers:**

Current: Incenergy has launched a pilot program for 50 homes at the Agave Development in Austin, and has deployed 40+ connected devices in Austin to date. In September Incenergy was selected to be a software provider and systems integrator for monitoring and verification of energy usage data in 200 homes for the Pecan Street Project in Austin. Additional, Incenergy has deployed Wireless EMS for commercial buildings in Dallas.

### **List of Competitors:**

Schneider Electric, Johnson Controls, Honeywell, & Site Controls all offer competition in the medium-to-large commercial building EMS market. Our vertically integrated competitors in the residential/utility and light-to-medium commercial markets are led by Tendril, Control4, EnergyHub, Cooper Power Systems and Consert.

### **Presenting Executive: Barry McConachie, CEO**

Phone: 512-327-2020 Email: barrym@incenergy.com

McConachie has over 25 years of business development experience; building and managing software, renewable energy, data communications, and wireless technology companies, including a \$1.5 billion exit. His experience is directly related to the challenges utilities face implementing grid and electricity management systems that can incorporate new technology and provide new services to customers.

### **Key Management:** Number of Employees: 15

Mike Bates, EVP Sales. Former VP-Sales at Gridpoint and an expert in the utility smart-grid space Shane Mericle, Software Development. Founded, grew and exited a document security company. Brings 10+ years of software experience

Last 12 months revenue: \$50,000 (unaudited)	Financing sought: \$5,000,000
Outside equity investment to date: \$1.25 million of private capital and secured in-kind commitments of \$1.25 million	Status: Early Stage

### infiniRel Corporation

www.infiniRel.com 6170 Research Road, Suite 209 Frisco, TX 75034-2878

Phone: 972-468-8890 Fax: 646-201-4492

### **Company Description:**

infiniRel, a Clean-IT start-up founded by Bert Wank as a Texas C-Corporation in July 2009, has developed a smart sensor technology that monitors the health of green power in solar, wind, and electric vehicle applications, infiniRel's patentpending signal processing technology uniquely predicts power electronics failure. Similar to a "check engine light", our solution alerts solar plant operators to plan for maintenance, reducing unscheduled maintenance, which costs the renewable energy industry one billion dollars per year, infiniRel returns cost control back to the operator and offers Energy Service Providers the opportunity to potentially quadruple operating profits. The CEO has successfully created 14 power management product lines, out of which nine achieved the coveted "Mach-1" award by Texas Instruments for revenues generated during the first three years after launch. In 2004, he staged a \$1 million private equity commitment for an Austrian software start-up. The company has developed a working prototype with \$110,000 in personal investments. First revenues from a limited-feature, handheld, version are expected in early 2011 with additional technology licensing revenues possible.

### **Business Strategy/Competitive Advantages/Market Opportunity:**

The company has received a signed Letter of Intent from a leading German solar firm, co-marketing its Condition-Based Maintenance solution to 15% of the European solar market. In 2008, Sandia National Laboratories reported that "59% of all unexpected maintenance costs of photovoltaic solar plants are due to inverter failure." Our global Served Addressable Market of \$2.5 billion for performance monitoring in photo-voltaic (PV) solar and gear-less wind turbine markets is expected to double by 2015. Initially we sell our Enterprise Software Service solution directly to Renewable Energy Service Providers, project developers and OEMs, also targeting Asset Management Software companies as channel partners. Annual monitoring revenues provide the company with a highly profitable recurring revenue stream for five to 25 years. The company builds multiple exit opportunities for an active acquisition market that values high-reliability solutions, such as multi-national energy (Siemens, ABB) and IT firms (HP, SAP, IBM).

### **List of Customers:**

Current: meteocontrol GmbH, 15% market share in Europe, leadership position in performance monitoring. Potential: Renewable Energy Service Providers, Project Developers, inverter manufacturers, risk under-writers.

### **List of Competitors:**

Captive, purpose-built, in-house solutions compete with over 20 privately held firms such as Fat Spaniel, Draker Labs, Deck, and Also Engineering, who only differentiate in customization of software reporting services. None have predictive capabilities today. Prior art for Condition-Based Maintenance solutions has been directed at mechanical systems through modeling and simulation and does not limit the company's freedom to operate.

### **Presenting Executive: Bert Wank, CEO**

Phone: 512-299-6674 Email: bert.wank@infiniRel.com

Wank comes with over 17 years of product management and international marketing experience. He served as an expert witness for an asserted battery management patent litigation and is the author of 11 technical publications and inventor of the company's technology. A former member of the Licensing Executive Society and Toastmasters International, he holds a B.S.E.E. from Germany and an M.B.A. in International Management from Thunderbird.

#### **Number of Employees: 4 Key Management:**

Bert Wank, CEO. See Presenting Executive above

Doug Knabe, VP Engineering. DSP software tools for wireless and defense electronics since 1976 Patrick Gooden, Co-Founder & Board Member. Senior executive operations roles since 1995 with two start-up exits

Last 12 months revenue: (\$0)	Financing sought: \$500,000
Outside equity investment to date: \$100,000	Status: Early Stage

### **Linum Systems LTD.**

www.linumsystems.com Pika Rd

Pardes Hanna, Israel 37000

Phone: +972 (4) 627-6267 Fax: +972 (4) 627-6268

### **Company Description:**

Linum systems LTD. is a privately held company, based in Israel. Linum Systems is developing a hybrid solar air conditioning technology which provides heat-driven cooling and heating, and seamlessly switches to electricity-driven mode during offsun conditions. This energy-saving technology offers better efficiency and significant cost reductions in comparison to other solar air conditioning systems available today in the market.

The technology is based on a novel patent-pending thermodynamic cycle developed and owned by Linum, using mainly standard industry components. Easy to install and operate, the system offers the first practical solar air conditioning solution for the residential and small office space. Linum Systems was founded in 2009 by Yuval Berson and Amir Hirshfeld.

### **Business Strategy/ Competitive Advantages/ Market Opportunity:**

The Linum hybrid A/C provides cooling, space heating and domestic water heating, with seamless, continuous operation during day or night, to meet the expectations of the modern customer.

The Linum A/C has the same look and feel as today's A/C and is operated and maintained in a similar fashion. It can be easily installed by today's integrators without need for specialized personnel or training. The first systems are planned for 3 ton (10kW) of cooling, which is a typical match point for the targeted market. The technology is scalable and is planned also to scale up and down to 5 ton and 2 ton of cooling. The Linum A/C offers great efficiency and significant cost reductions in comparison to other solar air conditioning systems available today in the market.

### **List of Customers:**

Potential: A/C manufacturers as OEMs, A/C distributors and integrators. The product is targeted to the residential and small business segments.

### **List of Competitors:**

Several companies, predominantly in Europe, offer absorption and adsorption cooling systems. These systems offer a similar cooling size but at triple the cost and at high complexity. Companies include Climatewell, Yazaki, Invensor, Sortech, and others. The complexity of implementation and prohibitive costs block the adoption of the technology and prevents penetration into the residential market, which Linum systems product targets.

### **Presenting Executive: Yuval Berson, CEO**

Phone: +972(4) 678-3998 Email: yuval.b@linumsystems.com

Berson is the co-founder and CEO with relevant experience in Clean-tech and power distribution. He holds a B.Sc. in EE from the Technion, Haifa and is an author of several patents.

### **Key Management:** Number of Employees: 3

Yuval Berson, Co-Founder and CEO, See Presenting Executive above

Amir Hirshfeld, Co-Founder and VP Engineering: Highly experienced in R&D and engineering in the renewable energy market, thermal engineering and cooling systems design. Amir holds a B.Sc. in ME from the Technion, Haifa

Last 12 months revenue: (\$350,000)	Financing sought: \$6,000,000
Outside equity investment to date: \$600,000	Status: Early Stage

### May Ruben Technologies, Corp.

www.may-rubentechnologies.com 7541Evening Falls Dr. Las Vegas, NV 89131

Phone: 1-866-910-3291 Fax: 403-244-0442

### **Company Description):**

May Ruben Technologies, Corp. (MRT) is a privately held corporation that was formed in 2005 by long time business associates Peter Ruben and Wayne May. Majority shares are held by the parent company, Alberta Mining Corporation (AMC), a third generation family company headquartered in Calgary, Canada. MRT is separately incorporated in Calgary, and Las Vegas, Nevada. MRT functions as a technology incubation company for clean energy and clean water innovations, funding concept development to the point that feasibility is established, and IP protection is assured. After basic research is completed, funds are raised and a subsidiary company formed to oversee the commercialization of the product. One of MRT's current projects approaching this stage is the Binary Fluid Ejector (BFE), a thermally driven heat pump that will allow for economical waste heat capture and upgrade for industrial process heating and cooling, integrated building utilities, and distillation and desalination applications.

### **Business Strategy/ Competitive Advantages/ Market Opportunity:**

In the U.S., most chillers utilize electrically driven, mechanical compressors. In Asia, thermal driven chillers are by far the dominant technology for industrial use, as they can directly utilize waste heat, reducing operating costs and the need for high grade fuel. BFE will target applications such as industrial waste heat recycling, gas turbine inlet cooling, and integrated Building Cooling Heating and Power (BCHP) units. The global market value for absorption chillers in these applications is over \$7 billion and showing strong growth. BFE has important competitive advantages over absorption systems that should ensure good capture of market share. BFE should also significantly expand the size of the market by enabling thermal driven heat pump/chiller use in additional applications such as industrial distillation and desalination, and commercial and residential building systems, where large absorption systems are infeasible. Absorption systems are larger, heavier, expensive, maintenance intensive, are less efficient than mechanical systems, and require water cooling. BFE will have a better efficiency than absorption systems, but with size, weight, and capital costs comparable to mechanical compressors. BFE should require less maintenance than both absorption and mechanical systems, will use safer operating fluids than the refrigerants used in mechanical systems and the ammonia utilized in some absorption systems, and should not require a water cooling tower.

### **List of Customers:**

Current: Many potential customers have expressed interest in BFE, including 3M, Shell Oil, ENMAX, and GE. Potential: industrial plants, electrical generation plants, desalination and industrial distillation plants and/or equipment manufacturers, municipal wastewater treatment plants, commercial building appliance manufacturers.

### **List of Competitors:**

Many companies produce absorption thermal heat pumps in Asia, Europe and North America, i.e. Broad Air-Conditioning in China, Trane in USA, and Robur in Italy. Due to BFE's advantages over absorption pumps it is anticipated that many of these competitors will also become manufactures and/or distributers of BFE equipment.

### **Presenting Executive: Peter Ruben, Chairman**

Phone: 1-866-910-3291 Email: pruben@may-rubentechnologies.com

Mr. Ruben has been chairman of AMC for the past 12 years, and holds a B.A. in Economics, and a B.S and M.S. in Engineering. In past ventures he has been involved with start-ups, and entered into joint venture agreements with Fortune 500 companies, such as Baxter Health Care, Outboard Marine Corporation, and Sears Roebuck.

### **Key Management:** Number of Employees: 7

Peter Ruben, Chairman. See Presenting Executive above

Wayne May, CTO, President. Technical Innovation and Research Management

Connie Ruben, Vice President. Business Development

Last 12 months revenue: \$0	Financing sought: \$1,000,000
Outside equity investment to date: \$569,000 Grant (award starting 10/2010)	Status: Early Stage

### Microstag, Inc.

www.Microstag.com 4150 Freidrich Lane, Suite A Austin, TX 78744

Phone: 512-628-2890 Fax: 512-628-2897

### Company Description (include establishment date & ownership structure):

Microstag designs, develops and manufactures high-performance MEMS (micro electro-mechanical systems) silicon valve systems capable of operating in normal to extreme flow control environments. Founded in 2001 to bring advanced technology to the flow control world, Microstag is a MEMS-based engineering company dedicated to developing and marketing micro-valve technology solutions to solve real world flow control problems. In 2009 Microstag launched a line of MEMS based electronic expansion valves and controls for the air conditioning and refrigeration markets. Our product, the Silicon Expansion Valve, replaces existing slow and inaccurate mechanical expansion valves and immediately improves the cooling system's efficiency and reduces the energy used. Microstag is a privately held company backed by three major investing groups and other small investors. It has been through two rounds of financing and is currently in a production ramp-up phase.

### **Business Strategy/ Competitive Advantages/ Market Opportunity:**

Microstag operates with a fabless semi-conductor model with direct product sales to end customers and distributors. Manufacturing has been established in Asia along with a division in China to support sales to Chinese customers. Microstag's unique MEMS based valve outperforms the competitor's products and through this performance difference provides significant energy savings. This energy savings has been successfully demonstrated in several field trials leading to complete system retrofits or customer supply agreements. The MEMS technology is highly complex with over eight years of product development and 25 patents. Global demand for HVAC equipment is projected to rise over six percent per year through 2014 to more than \$88 billion providing a significant market potential for our product.

### **List of Customers:**

Current: We are currently shipping product to domestic and international customers including one of the world's leading HVAC OEM's and four major ESCO's.

Potential: Our silicon expansion valve and controls can be used in all vapor-compression cycle systems and with all major refrigerants. In addition to the OEM manufactures of refrigeration and air conditioning equipment we also sell to the end customer and can retrofit our products into large grocery stores, big box stores, schools, local/state/federal buildings, hospitals, hotels and residential HVAC systems.

### **List of Competitors:**

Existing legacy technology expansion valves (thermostatic, stepper or pulse motor electronic expansion valves) made by companies such as Parker, Danfoss, Carel, Emerson, and Saginomiya. We have indirect competition from other energy efficiency retrofits (HVAC controls, lighting, etc.) and new high efficiency HVAC/R systems.

### **Presenting Executive: Mark Luckevich, CTO**

Phone: 512-628-2890 x125 Email: mluckevich@microstaq.com

Luckevich has 25 years of new product and control system design experience in a number of flow control industries. He developed pneumatic and cabin pressure controls for the aerospace industry followed by the design and development of hydraulic chassis control systems for the global automotive market. He now leads the new product design for MEMS based flow control products.

#### **Key Management: Number of Employees: 50**

Sandeep Kumar, President & CEO. Semi-conductor industry veteran and has started and lead 3 other companies Mark Luckevich, CTO. See Presenting Executive above

Nelson Fuller, VP Research. Co- inventor of the MEMS micro-valve and Silicon Expansion Valve Mike Mottice, VP Sales. Sales leader focused on HVAC, OEM's, Auto, Oil~Gas, and other industrials

Last 12 months revenue: N/A	Financing sought: \$5 million in a \$15 million Series C
Outside equity investment to date: \$29,150,000	Status: \$10 million of the Series C is closed

### **Mission Motor Company**

www.ridemission.com 2255 Third Street San Francisco, CA 94107

Phone: 610-555-1212 Fax: 801-346-9961

### **Company Description:**

Mission Motors is an electric vehicle technology company creating high performance electric powertrain systems for the automotive, powersports, and power equipment markets. Founded in 2007 and headquartered in San Francisco, California, the company's elite engineering team draws from expertise in the robotics, powersports, automotive, and software industries to develop battery pack, motor, and vehicle control technologies that maximize the potential of the complete electric powertrain. Mission has proven its technology and brand through the development of its own performance electric motorcycle, a vehicle that has demonstrated a top speed of 163 MPH and has a range of 150 miles on a single charge. The company has secured contracts for its powertrain systems with major vehicle OEM's and continues to develop new OEM customers. The company recently closed a \$4.7 million Series A financing round led by Infield Capital based in Boulder, CO.

### **Business Strategy/ Competitive Advantages/ Market Opportunity:**

Macroeconomic forces are driving a rapid shift in the transportation industry to vehicle electrification. Vehicle companies outside the "Big-6" automotive companies have a strong need for EV technology and expertise that can help them reduce risk and time to market. Mission Motors provides manufacturers with the highest performing electric powertrain systems that can easily be integrated into a variety of vehicle types. The Company's proprietary lithium-polymer battery module offers the highest combined energy and power density on the market, while the integrated Battery Management System maximize the life cycle and safety of each cell through Mission's software and electronics architecture. The battery system powers Mission's motor and motor control technologies that use new thermal management and software control techniques to reduce volume and optimize efficiency of the entire system. The company has proven its technologies in its demonstration electric motorcycle, the Mission One. Mission targets OEMs in hybrid and electric cars, powersports, and large fleet vehicles.

### **List of Customers:**

Current: OEMs in the Hybrid-Automotive and powersports industries; Premium motorcycle consumers. Potential: Major vehicle manufacturers in automotive, large transit vehicles, and outdoor power equipment

### **List of Competitors:**

Mission competes for powertrain contracts against component suppliers, vehicle manufacturers, and integrators. Major competitors include A123, Ener1, Tesla Motors, Think, Magna Steyr, FEV, and Motocsysz. In the premium motorcycle market, Mission competes against high-end incumbents such as Ducati, MV Agusta, and Aprillia.

Presenting Executive: Jit Bhattacharva, CEO

Phone: 510-735-6240 Email: jit@ridemission.com

Bhattacharya has over 5 years of experience in technology, energy, and management roles. He began his career in the automation industry managing multi-million dollar projects for Velocity11 (now part of Agilent), a leading developer of automation systems for the biotech industry. He worked in product development for IDEO product design and at the venture capital fund, Spring Ventures, where he developed deep knowledge of the lithium-ion battery industry and emerging business models in electric vehicles. Bhattacharya holds an M.S. in engineering from Stanford and an M.B.A. from UC Berkeley.

### **Key Management:** Number of Employees: 18

Jit Bhattacharya, CEO, See Presenting Executive above

Christopher Moe, CFO, Former CFO of Vectrix Electric Vehicle Company

Jon Wagner, CTO, Designer of industry-leading 4-axis automation robot

Raymond Shan, VP of Operations: 7 years System Engineering at Ford Motor Company

Dan Kaplan, VP Finance & Operations: Former CFO of Ducati NA. Director of Finance at Tesla Motors

Last 12 months revenue: \$284,032	Financing sought: \$15,000,000
Outside equity investment to date: \$4.7 million	Status: Series B

### MTPV, LLC

www.mtpv.co 13915 Burnet Road, Suite 204 Austin, TX 78728

Phone: 512-246-1988 Fax: 512-246-1978

### **Company Description:**

MTPV, LLC creates semiconductor chips that covert heat directly into electricity. Much like a solar panel will convert sunlight into electricity, we are able to convert any source of heat into electricity with several significant advantages over existing solutions. By using Micron-gap Thermal PhotoVoltaics (MTPV) we are able to create 10X to 50X more power, using no moving parts, and 45% less heat than competitive technologies. These advantages open the door for chip-based solutions that were previously unobtainable. The patented technology has been developed over the last 16 years beginning at MIT and Draper Laboratory and for the last 5 years in the labs of MTPV. Currently, MTPV has been awarded 3 patents with 6 pending awards and one provisional and over 50 disclosures in addition to ongoing research and development efforts.

### **Business Strategy/ Competitive Advantages/ Market Opportunity:**

There are four segments in which MTPV will focus: waste heat conversion, solar power, combined heat and power, and portable power. MTPV will focus on addressing the over \$75 billion high quality waste heat segment of the waste heat recovery market with its initial products. This initial focus area provides several advantages for MTPV. There is relatively high temperature heat available in this segment of the market, which will allow higher electricity output driving stronger economic value. Because the waste heat exists and does not need to be created, MTPV does not increase the carbon footprint or fuel consumption therefore generating 100% green power. MTPV will have a significant competitive advantage over other chip-based solutions with efficiencies between 10-60%, producing between 1 and 50 watts/cm2. MTPV will manufacture products, license IP, and sell solutions. We will be licensing our IP directly to manufacturers as well as selling them sub-components to use in conjunction with their products and solutions. MTPV will deploy a vertical segmented channel of partners, mainly engineering and design firms with specific vertical expertise to sell, install, and maintain our products in the market place. MTPV panels will also be sold directly to customers that will produce electricity either for use or sale.

### **List of Customers:**

MTPV's initial customers for our first product will be in the industrial manufacturing, gas/oil, power generation, biomass, and vented methane verticals. Most industrial plants have waste heat, such as glass plants and cement plants. Any companies running open or closed flares, the mining industry, and biomass companies are all potential customers for our initial waste heat products.

### **List of Competitors:**

There are no direct competitors in Micron-Gap TPV technology. However, there are other chip-based as well as non-chip based solutions that we will compete against. Other chip-based solutions include conventional TPV, which have very low efficiency and costs as high as \$30/watt, as well as thermoelectrics, which also have high relative costs and low efficiency. Currently we do not compete directly with turbines and engines; however, there are many opportunities in which we will be a more attractive solution due to our flexibility, scalability, and resilience in environments typically not conducive to large mechanical solutions.

### **Presenting Executive: David Mather**

Phone: 512-246-1988 Email: david.mather@mtpvcorp.com

Mather is vice chairman, president, COO, and a co-founder of MTPV. Along with a B.S. in computer science from Northeastern University. David brings 25 years of industry and business experience.

### **Key Management:** Number of Employees: 10

Robert DiMatteo, CEO and Founder. 29 years of energy experience, Harvard Grad, MIT Sloan Fellow David Mather, Vice Chairman, President, and COO. See Presenting Executive above Shannon Kovar, VP of Operations. 20 years of experience in business operations, program management, B.S., M.S.

Last 12 months revenue: N/A	Financing sought: \$2,000,000
Outside equity investment to date: \$10,000,000	Status: Early Stage

### NanoMas Technologies, Inc.

www.nanomastech.com 1093 Clark St. Endicott, NY 13760

Phone: 607-821-4208 Fax: 866-367-1128

### **Company Description:**

NanoMas Technologies, Inc. is the leading developer of low cost, highly functional nanomaterials for the clean energy and electronics marketplace. Its patented and proprietary technologies integrate precision nanoscale engineering with mass production processes, resulting in the highest performing conductive and semiconductive nanoparticle inks and pastes for emerging applications in solar cell manufacturing and the electronics packaging industry.

Established in 2006, NanoMas Technologies has the team, the technology and the capital efficient business model necessary to produce superior results in these rapidly growing markets.

### **Business Strategy/ Competitive Advantages/ Market Opportunity:**

Rapid growth and demand for increased efficiency in photovoltaic products is well documented. The market for metallization of c-Si cells with silver and aluminum based conductors is well established and resulted in more than \$500 million of these products consumed in 2009. An exciting new technology, inkjet printing of these conductors based nanosilver ink formulations provided by NanoMas Technologies promises to increase cell efficiency, double production throughput and reduce scrap from breakage.

### **List of Customers:**

### **List of Competitors:**

### **Presenting Executive: John Hannafin**

Phone: 339-222-1530 Email: john.hannafin@nanomastech.com

Hannafin has over 20 years experience in electronic materials industry. Former VP Business Development and Marketing at Reactive NanoTechnologies, Parker Hannifin Corp, Nexus Adhesive Corp.

#### **Key Management: Number of Employees: 9**

John Hannafin, President and CEO. See Presenting Executive above

Zhihao Yang, CTO and EVP, Co-founder, Inventor of over 25 US patents (60 worldwide), Held senior R&D and technical management positions at Eastman Kodak and Sinus Rhythm Technologies, Ph.D.

Tom Xu, VP Engineering, Co-founder, Seasoned consultant to the materials and mining industries. Skilled in large scale engineering projects and manufacturing scale up, Ph.D.

Howard Wang, Consultant, Co-founder. Associate Professor of Material Science at Binghamton University.

Over 60 technical publications, Ph.D.

David Roe, Business Development Consultant. Over 25 years experience in electronic materials industry. Most recently VP Business Development at Henkel, National Starch, ICI, Dupont

Last 12 months revenue:	Financing sought: \$4,000,000
Outside equity investment to date: \$3.2 million	Status: Early Stage

### **Natural State Research, Inc.**

www.naturalstateresearch.com 37 Brown House Road Stamford, CT 06902

Phone: 203-406-0675 Fax: 203-406-7598

### **Company Description:**

Natural State Research, Inc (NSR) is a private research company that was established 2003 and is wholly owned by Karin Kaufman. She is devoted to the protection of the environment and wants to help improve the economy of the world. NSR utilizes abundant solid waste plastics and converts it into usable liquid hydrocarbon fuel. This fuel has been tested and proven to work with current internal combustion engines and gasoline powered generators. NSR currently has a U.S. patent that is pending. In its laboratory, NSR is currently carrying out the production process in a mini-pilot at a rate of 300 – 3000 gm of waste plastics conversion per day. In the near future, NSR plans to move into a much larger pilot plant and then into full scale commercialization.

### **Business Strategy/Competitive Advantages/Market Opportunity:**

NSR plans to either license and/or build, own and operate plants that utilize its patent-pending and award winning technology. We convert municipal solid waste plastics (PETE-1, HDPE-2, PVC-3, LDPE-4, PP-5 and PS-6) into different categories of liquid fuel that can be used in the majority of internal combustion engines at about 75 cents per gallon. A plant with an estimated capital cost of \$5M will annually process 25K tons of plastic and produce 7.3M gallons of fuel. It is projected that such a plant would yield a yearly profit of \$9.4M (when benchmarked against \$75/bbl crude oil) providing a payback period of about 6 months. Compared to the competition, NSR's technology is cheaper, simpler, and more flexible in terms of input (types of plastic) and output (types of fuels). The world produces about 280 million tons of waste plastic per year yet less than 6% of it is recycled. One ton of waste plastic can be converted into 340 gallons of NSR liquid fuel. 1% of the market (less than the amount produced by the State of California) would equate to the production of 817 million gallons per year with at an annual profit over \$1B.

### **List of Customers:**

Current: Plastoline LLC is our licensee for California, Oregon, Washington, Hawaii and Mexico

Potential: The waste management, transportation, oil, and chemical industries. A few examples are Republic Waste, United Parcel Service, Union Pacific Railroad, DuPont, Dow Chemical, Chevron, and Tesoro.

### **List of Competitors:**

NSR competitors Ozmotech, Envion, Poly flow Corp, Polymer Energy, Global Resource Corp., Plas2Fuel, Agri-plas, EcoKat, and Energy Visions are currently working with conversion of waste plastics. Our competitors all use pyrolysis technology.

### Presenting Executive: Moinuddin Sarker, Ph.D., MCIC

Phone: 203-231-5300 Email: msarker@naturalstateresearch.com

Sarker earned a Ph.D. in Chemistry from the University of Manchester Institute of Science and Technology (UMIST), Manchester, UK. During his postgraduate studies and postdoctoral research work, he carried out research in four different synchrotron radiation sources around the world. He has two patent pending and 35 research publications to his credit in pier reviewed journals and conferences. Sarker is the inventor of the technology and product entitles: "Method for converting waste plastics to lower – molecular weight hydrocarbons, particularly hydrocarbon fuel materials and the hydrocarbon material produced thereby" (US and International Patent Pending).

### Key Management: Number of Employees: 5

Karin Kaufman, President, CEO, and CFO. See Presenting Executive above Moinuddin Sarker, Executive VP and COO. Inventor of Technology on Waste Plastics to Liquid Fuels

Last 12 months revenue: (\$0)	Financing sought: \$3.5 million development, \$5 million project financing
Outside equity investment to date: (\$0)	Status: Development Stage

### **Ocean Renewable Power Company, LLC**

www.oceanrenewablepower.com 120 Exchange St, Suite 508 Portland, ME 04101

Phone: 207-772-7707 Fax: 207-772-7708

### Company Description (include establishment date & ownership structure):

Ocean Renewable Power Company, LLC (ORPC) is an industry leading developer of technology and projects that generate clean, predictable, affordable electricity from ocean and river currents. ORPC is in the process of obtaining Federal Energy Regulatory Commission (FERC) Pilot Project licenses for two of the world's most robust tidal energy sites in Maine and Alaska and is currently testing the largest ocean energy power system ever installed in U.S. waters at its Maine site. ORPC will install its first grid-connected TidGen™ Power System in 2011 and then commence commercial build out of its tidal energy sites in 2012. ORPC will generate revenues from the sale of electricity and environmental credits from projects it develops, owns, and operates, and from the sale of proprietary tidal and river power systems and related technical services. Established in 2004, ORPC is a Delaware Limited Liability Company with 2 Members−ORPC Holdings, LLC and Caithness ORPC, LLC. ORPC has three regional project development subsidiary companies−ORPC Florida, LLC; ORPC Maine, LLC; and ORPC Alaska, LLC, which are the owner/developers of hydrokinetic electricity generating projects using ORPC's proprietary power systems in their respective regions.

### **Business Strategy/ Competitive Advantages/ Market Opportunity:**

ORPC recently passed all performance testing and is currently operating its pre-commercial Beta Power System turbine generator unit suspended below a test vessel in Cobscook Bay, Bay of Fundy, Maine. ORPC is supplying tidal generated electric energy in a demonstration project to the US Coast Guard in Eastport, Maine. ORPC business plans 1) 2011: Secure FERC license and install first full-scale commercial TidGen™ Power System in ME and deliver and sell tidal generated electricity to the grid; build and test first RivGen™TGU for river applications in ME; 2) 2012: Secure FERC license and install first TidGen™ Power System in AK; expand ME TidGen™ Power System to 5 units; install first RivGen™ Power System in AK; and 3) 2013: Install first OCGen™ Power System for deep water tidal generation in ME; expand TidGen™ Power Systems in ME and AK; expand RivGen™ Power System in AK. Concurrently, ORPC will market its power systems and technical services to others and will expand project development into the Canadian Bay of Fundy Provinces while building its international market through joint ventures and other strategic relationships.

### **List of Customers:**

Current: \$100,000 contract with U.S. Coast Guard for Demonstration Project. Customers for electricity and environmental credits from ORPC developed projects in Maine and Alaska will be electric utilities, municipal and public power districts, power marketers, and wholesale power purchasers. Customers for power systems and related technical services will be ORPC developed projects, independent power developers, electric utilities, municipal and public power districts, and smaller, off-grid coastal, island and river communities.

### **List of Competitors:**

Approximately 60 companies are developing tidal energy conversion devices. Those closest to commercialization include Marine Current Turbines (UK), Atlantis (Singapore), OpenHydro (Scotland), HammerfestStrom (Norway).

### Presenting Executive: Christopher R. Sauer, PE, President, CEO, Co-Founder

Phone: 207-221-6240 Email: csauer@oceanrenewablepower.com

Sauer has 35+ years in executive management, engineering, power project development, electricity marketing, and startup technology company formation.

### Key Management: Number of Employees: 20

Ernest K. Hauser, Sr. Vice President.

John R. Cooper, Sr. Vice President & CFO.

Last 12 months revenue: (\$0) Financing sought: \$15 million Series B Equity

Outside equity investment to date: \$13 million equity + \$15 million grants + \$4.5 million convertible bridge loan Status: Tested Pre Commercial Full Scale Prototype; Maine Project in final permitting

Last 12 months revenue: product still in development	Financing sought: \$900,000
Outside equity investment to date: self-funded	Status: Early Stage

### **OPX Biotechnologies, Inc.**

www.opxbio.com 2425 55th Street, Suite 100 Boulder, CO 80301

Fax: 303-243-5193 Phone: 303-243-5192

### **Company Description:**

OPX Biotechnologies, Inc. (OPXBIO) is a Colorado-based company using biotechnology to convert renewable raw materials into biochemicals and biofuels. Applying its Efficiency Directed Genome Engineering (EDGE™) technology, it will manufacture bio-based products that are more economical and sustainable than petroleum-based alternatives. OPXBIO's EDGE™ technology allows it to optimize microbes and bioprocesses much faster with less investment than conventional methods. The power of EDGE also enables cost-effective development of multiple products from a range of renewable feedstocks. OPXBIO was founded in 2007 by Michael Lynch and Ryan Gill based on their work at the University of Colorado - Boulder. The company is private with venture capital financing provided by Mohr Davidow Ventures, Braemar Energy Ventures, Altira Group, and X/Seed Capital.

### **Business Strategy/ Competitive Advantages/ Market Opportunity:**

OPXBIO's first product will be BioAcrylic, a drop-in replacement for petroleum-based acrylic that today has an \$8 billion global market growing 4% per year. The company is forming joint development partnerships to complete the bioprocess demonstration in 2011-2013 based on successful piloting of the 3HP - BioAcrylic microbe and process in 2010. BioAcrylic will commercialize in 2014 via a manufacturing joint venture and will be 25% lower cost with 75% lower CO<sub>2</sub> emissions compared to petroleum-based acrylic. OPXBIO's second product is biodiesel which it is developing with the support of a \$6 million grant from the U.S. DOE ARPA-E program. The ARPA-E project is a 3-year program to biologically produce biodiesel through fermentation from carbon dioxide and renewable hydrogen. OPXBIO is partnering with NREL and Johnson Matthey on this program.

### **List of Customers:**

Customers for BioAcrylic will be today's producers of acrylic polymers and esters used in a wide range of consumer and industrial products including diapers, paints, adhesives, and detergents. Customers will purchase BioAcrylic polymers to reduce cost while increasing the sustainability of their products.

### **List of Competitors:**

BioAcrylic from OPXBIO will replace petroleum-based acrylic acid in its current applications. The largest producers of petroleum-based acrylic today are BASF, Dow, Arkema, and Nippon Shokubai. Each of these are potential partners for demonstration and commercialization of BioAcrylic with OPXBIO. Cargill earlier invested to develop the 3HP-BioAcrylic process, but has now suspended the project and formed a licensing partnership with Novozymes who reports continued effort to develop the bioprocess for 3HP production.

### Presenting Executive: Charles (Chas) R. Eggert, President and CEO

Phone: 720-544-6853 Email: ceggert@opxbio.com

Eggert has 33 years experience in business management and executive leadership in the global specialty chemical industry with deep experience in the acrylic value chain.

#### **Key Management: Number of Employees: 45**

Charles Eggert, President & CEO. See Presenting Executive above

Michael Lynch, CSO. Founder of the company and inventor of the EDGE™ technology

Daniel Muehl, CFO. 25 years of experience in finance leadership roles in fast-growing publicly traded companies Michael Rosenberg, VP Business Development. Over 25 years experience in the energy, petrochemical and environmental industries with focus on strategy and development

Stephen Toon, VP Engineering and Operations. Over 22 years of experience in industrial bioprocess development, commercialization, and operations

Last 12 months revenue: N/A	Financing sought: \$50,000,000
Outside equity investment to date: \$22,500,000	Status: Demonstration Stage

### OsComp Systems, Inc.

www.oscomp-systems.com 222 Third St. (4th Fl- DPL) Cambridge, MA 02142

Phone: 617-418-4640 Fax: 617-449-9552

### **Company Description:**

OsComp Systems has developed a breakthrough, patent-pending compression technology that can cut operating and capital costs by over 30%. Using this technology, OsComp designs, engineers, and manufacturers compression equipment for the natural gas industry. This equipment will be sold as complete compressor packages to the natural gas industry with OsComp's breakthrough technology used in the compressor airend unit. Through a capital efficient approach to development and what may be the shortest path to market value seen for mechanical device technologies in recent years, OsComp intends to sell its products widely to natural gas producers.

### **Business Strategy/ Competitive Advantages/ Market Opportunity:**

The current natural gas compression market in the United States is projected to be \$7.2 billion for 2010. This market can be broken down into Wellhead Compression (\$720 million), Gathering and Pipeline Compression (\$4.2 billion), and Refinery and Offshore Compression (\$2.3 billion). The initial target for OsComp Systems will be the wellhead compression market, focusing on marginal wells that are not economically viable with existing compression technology. Once OsComp's technology has been proven in the field, the opportunity to expand into other areas of the natural gas value chain, as well as CO<sub>2</sub> and other future markets, are immense (greater than \$20 billion).

### **List of Potential Customers:**

End Users: Exxon Mobil, BP, ConocoPhillips, Shell, Eni, Total, Statoil, Repsol, Reliance, Sinopec, Apache Corporation, Chesapeake, EOG Resources, Cabot Oil and Gas, Range Resources, Carrizo Oil and Gas, Lenape Resources, American Refining Group, Pioneer Oil and Gas, Saudi Aramco, Gazprom and Rosneft, PDVSA.

Packagers: Exterran, Toromont Systems, Valerus Compression, J.W. Power, US Compression, Compressoo/Tetra Technologies

### **List of Competitors:**

Compressoo, Natural Gas Services Group, JBL LLC, Ariel Corporation, Dresser Rand, GE Oil & Gas, Cameron, Burckhardt Compression, Neuman & Esser.

### **Presenting Executive: Pedro T. Santos**

Phone: 585-469-1523 Email: psantos@oscomp-systems.com

Pedro is a 7 year veteran of the compression industry and the lead inventor of the breakthrough hybrid rotor technology while at MIT. He is a seasoned entrepreneur who has founded and sold two companies, including a machinery distribution and service firm, before attending MIT. Prior to that, he occupied positions at an affiliate of Ingersoll-Rand Compressors in Latin America.

### Key Management: Number of Employees: 8

Pedro T. Santos, CEO & Founder. See Presenting Executive above Emmanuel Magani, VP Operations & Founder.

Jeremy Pitts, VP Product Development

Last 12 months revenue:	Financing sought: \$1 million
Outside equity investment to date:	Status: Early Stage

### The Paper Battery Company, Inc

www.paperbatteryco.com 45 Ferry St Troy, NY 12180

Phone: 518-244-462 Fax: 518-375-0219

### Company Description (include establishment date & ownership structure):

Starting operations in January 2009, privately held and angel funded, Paper Battery Company is currently at the alpha prototype stage in development of structural sheets that store energy–the PowerWrapper™ platform. Harvesting, storing, and delivering pulses of energy close to the site of use will enable new applications and reduce system costs, partly by reducing battery size (typically sized based on peak power pulses required) and by replacing passive structural elements with load-bearing, energy-storing structures. The company has developed a portfolio of its own patents and has an exclusive license to the original patent filed by Rensselaer Polytechnic Institute (RPI).

### **Business Strategy/ Competitive Advantages/ Market Opportunity:**

An analog power driver in flexible thin sheet form is now available locally at the site of usage. Installed with structural components, it now enables new cost and space saving design of circuits in electronic devices such as laptops. Competitive advantages include an ability to deliver high voltages and high power in a thin, flexible form factor and a differentiated low cost, high volume roll to roll production process. First applications of this technology are as co-packaged, power solutions in flexible devices such as PV and wireless medical diagnostics. The GEN1 product will be made and sold to flexible PV makers (as OEMs) for use in specific applications where high power or low light efficiency is needed, and transportability and portability are important. Next stage could be a licensing model where the platform is licensed to printed PV companies for integration in their manufacturing lines. Medical applications are being explored with a co-development agreement signed with a large diagnostics company. GEN2 PowerWrapper™ will be sold to builders and contractors in partnership with a building materials company with established sales and distribution channels. The company will commercialize first product on a pilot line in house and will contract volume manufacturing if economical. Milestones include partnership with flexible photovoltaic OEM established by end of 2010; Beta prototype established by Q2-2011 and accepted by OEM. Pilot line functional by early to mid 2011 producing 10s of devices a day, preproduction prototype in second half of 2011. A combination of early revenues from early adopter OEM sales, government grants, private investment, and partnership R&D funding will help support further product development towards scale production.

### **List of Customers:**

Potential: One of three flexible photovoltaic companies that have expressed interest; medical device cos, transportation companies, building materials partner, other rigid supercapacitor company as investor, market partner.

Existing: Medical diagnostic device company (co-development agreement signed and funded)

### **List of Competitors:**

There are no other flexible, high power, high energy density, scalable sheet materials that can be structurally integrated currently on the market. Research projects are ongoing at various universities but limited to low energy density. Infinite Power Solutions has a thin flexible rechargeable device but it is limited in size and has a high cost due to CVD production methods. Cap-XX has a thin form factor supercapacitor that is limited in scalability, inflexible, and is much thicker (1.2mm) than the PBC devices.

### **Presenting Executive: Shreefal Mehta**

Phone: 518-331-8078 Email: shreefal@paperbatteryco.com

CEO Shreefal Mehta, Ph.D., M.B.A, successful entrepreneur with global business and high tech R&D experience, sold previous company to an Australian public biotech.

### **Key Management:** Number of Employees: 5

Robert Miller, CTO Materials physicist. Inventor on core patents in inkjet technology (HP) and fuel cells (MTI Micro). Expertise in taking breakthrough concepts to commercial prototypes. Ph.D.

Last 12 months revenue: (\$750,000)	Financing sought: \$3,000,000
Outside equity investment to date: \$250,000 Grant (done Over \$1M in angel financing to date.)	Status: Early Stage

### **PCM Innovations, LLC.**

www.esbits.com 2075 River Walk Lane Longmont. CO 80504

Phone: 303-931-1606 Fax: 866-616-9570

### **Company Description:**

PCM Innovations, LLC (PCMI) is a Colorado LLC formed in 2008 by Joe Parker. PCMI has developed and tested a patent pending formulation for a new phase change material (PCM) that will for the first time enable building material manufacturers to vastly improve the energy efficiency of their existing products by adding our esBITS™. PCMI's esBITS™ novel formulation was developed to solve the core problems that prevent wide adoption of PCM's in the building material industry today, esBITS™ are flame resistant, do not leak, are not respirable and therefore safe to work with and incorporate in building products. Most importantly, they blend easily with most building materials and integrate easily into existing manufacturing processes, such as floor tiles, wallboards, ceiling tiles, insulation, and stucco. esBITS™ have been tested and verified by leading industry players. In addition, PCMI has development projects in place with strategic U.S. and UK building materials manufacturers for incorporation into their product families.

### **Business Strategy/Competitive Advantages/Market Opportunity:**

esBITS™ novel formulation of PCM can reduce energy costs in a building by up to 25% by reducing peak loads on heating and cooling using passive energy. Buildings consume over 50% of the energy in the U.S. The problem faced by building owners is how to retrofit buildings to reduce energy consumption given existing and future design criteria and changing building codes. Generically, PCMs offer an attractive upgrade but as offered by competing PCM suppliers, they are flammable and difficult to use as an add-on for an existing product, esBITS™ solve these problems. PCMI works with a manufacturer to optimize esBITS™ for their application and then ships the optimized esBITS™ directly to their factory. The manufacturer's product line is expanded to include a premium value added, energy efficiency product. PCMI will operate esBITS™ manufacturing plants and develop new formulations and applications. esBITS™ plants are small, modular and inexpensive to build and operate anywhere in the world. The market size for energy efficiency retrofits for buildings in the U.S. is forecasted grows to \$42.9B in 2014 from \$27.2B in 2009. PCMI anticipates revenues of \$35M within 5 years and an exit opportunity through acquisition by a major building products manufacturer.

### **List of Customers:**

Current: Vaproshield - distributes a building wrap systems in the U.S. and Canada that serve to regulate moisture The Mark Group - the largest energy efficiency, retrofit company in the UK

Potential: Two companies in the UK waiting for samples to test

### **List of Competitors:**

BASF and Microtek Laboratories make an encapsulated PCM. If building material manufacturers wants to use encapsulated PCMs today, they must purchase from these two companies. BASF supplies PCM to our company and we have a marketing agreement with them in place.

Non-encapsulated PCMs are available but they are even more difficult to use, requiring major modifications to mitigate risk of fire or contamination from leaking PCM in its liquid form.

### **Presenting Executive: Joe Parker**

Phone: 303-931-1606 Email: joeparker@esbits.com

Parker earned an M.B.A. from the Darden School. He has leadership experience in a multi-national corporation, as an owner of a privately own company with over \$20 million in revenue, and in startups focused on Green Building Products.

#### **Key Management: Number of Employees: 4**

Joe Parker, CEO. See Presenting Executive above

Carl Kalin, Sales and Marketing VP. Co-founder of energy efficiency company that raised \$5.6 million VC in 2010

Last 12 months revenue: \$8,500	Financing sought: \$700K debt; \$1M Series A
Outside equity investment to date: \$72,000 convertible debt	Status: Early Stage

### **Pythagoras Solar**

www.pythagoras-solar.com 3301 Kempton Avenue Oakland, CA 94597

Phone: 917-575 8724 Fax: 415-373 4619

### **Company Description:**

Founded in 2007, Pythagoras Solar provides building integrated photovoltaic (BIPV) products that enable the architecture, engineering, and construction sectors to design buildings with renewable energy generation, increased energy efficiency, and appealing aesthetics; thereby increasing real estate value. Pythagoras Solar will deliver the industry's first transparent and power density photovoltaic glass unit (PVGU), combining the modularity and insulating benefits of the insulating glass unit (IGU) with the industry's highest density BIPV power generation. Pythagoras Solar has raised \$11 million in capital from investors including Evergreen Venture Partners, Israel Cleantech Ventures, Pitango Venture Capital, and Precede Technologies.

### **Business Strategy/Competitive Advantages/Market Opportunity:**

Pythagoras Solar's PVGU-or more simply, solar window-provides the industry's highest transparency and highest density PV power generation in a standard double-pane window form factor, known in the industry as an IGU. The PVGU leverages the modularity and ease of installation of the IGU; it is designed to meet advanced building codes and standards, and can be optimized for a variety of uses. The first products are designed for curtain wall and skylight applications. The combination of energy savings and energy generation provided by the PVGU allows the product to pay for itself in less than five years. By delivering an unprecedented value to the end customer in terms of the combination of energy savings and energy generation Pythagoras' PVGU allows for the development of a product that can provide a fast ROI at pricing that allows Pythagoras to build a sustainable business model. Pythagoras Solar will bring to market the first fully integrated PVGU that addresses the \$1 billion BIPV glass market, which has an expected 20 percent compound annual growth rate (CAGR) and is gaining market share within the \$25 billion building fabricated glass market. Its adoption will be accelerated by government subsidies focused on energy security and climate change. Pythagoras' partnering strategy will allow the company to leverage existing market players and channels to get to market in a timely and efficient manner.

### **List of Customers:**

Pythagoras is currently developing a pipeline of projects in the U.S. and Asia with the first planned for 4Q'10.

### **List of Competitors:**

There are a variety of products and technologies that aim to bring increases in either energy efficiency or energy generation to the vision or light harvesting area of buildings (i.e. windows and skylights). Products such as advanced energy efficient windows (Viracon, Serious Materials, etc.), dynamically tint-able glass (Sage, etc.), and evolutionary PV products (Schott, Scheuten, etc.) are designed to either save energy through energy efficiency improvements or generate electricity on a building façade. None of which are able to combine the two effectively.

### Presenting Executive: Udi Paret, VP Business Development & Marketing

Phone: 650-357-7545 Email: udi@pythagoras-solar.com

Before joining Pythagoras Solar, Paret was president of Fusion Dynamic, where he led global expansion and partnership development with IBM. Prior to that, Paret joined the founding team of Intransa, a pioneering storage-over-IP company and transformed the company into a multimillion dollar global enterprise with agreements with Huawei, China and HCL, India. Earlier in his career, Paret held executive positions at 3Com Corporation, including senior director of Customer Care for its \$600 million OEM division. Paret holds a B.S. in Industrial Engineering & Management from the Technion in Israel and participated in Executive Programs at Stanford University.

### **Key Management:** Number of Employees: 20

Gonen Fink, CEO. Long tenure at CheckPoint Software from early stage through IPO Itay Baruchi, CTO. Lead inventor of Pythagoras' optically enhanced PV systems Udi Paret, VP Business Development & Marketing. See Presenting Executive above

Last 12 months revenue: N/A	Financing sought: \$12 million in 2H'11
Outside equity investment to date: \$11,000,000	Status: Product Introduction

### ReGreen Technologies, Inc.

www.regreentech.com 509C Arbor Oaks Lane Waukesha, WI 53188 Phone: 262-744-1354

### **Company Description:**

ReGreen Technologies Inc. is a privately held corporation that was formed in early 2010 in partnership with three engineers from the University of Southern California and Georgia Tech.

### **Business Strategy/ Competitive Advantages/ Market Opportunity:**

ReGreen Technologies Inc. has developed an inexpensive high-efficiency Simulated Moving Bed (SiMB) Heat Regenerator that absorbs and recycles heat at an efficiency > 90% from flue gases leaving coal-fired processes in coal plants. The current checkered bricks method has an efficiency of 40%. ReGreen heat regenerator will generate saving of up to 325,000 tons of coal annually for a typical coal plant with a flue gas flow rate of 400 m3/sec (850,000 scfm), per blast furnace. This coal saving translates to about 1/4th of the annual coal utilization. The capital cost of retrofitting a SiMB Heat Regenerator in a plant with flue gas flow rate of 400 m3/sec (850,000scfm) is \$20 million. The coal savings in an industrial process of this scale translates to savings of \$14 million per year.

We also have developed a Simulated Moving Bed (SiMB) Sorbent Regenerator that reduces emissions by absorbing SOX and NOX from flue gases with efficiency > 95% and > 94% respectively, and allows them to be converted into useful byproducts. EPA has asked coal plants in US to reduce sulfur dioxide emissions from 2005 levels by 71% by 2014 and Nitrogen oxide emissions by 52%.

Using conventional technologies, the capital cost for installing a wet scrubber to remove SOX in a 500 MW power plant is about \$87.5 million. Additionally, the capital costs to remove NOX using a SCR apparatus in a 500 MW plant is \$75 million. The cost for the ReGreen Technologies SiMB Sorbent Regenerator is estimated to be \$30 million. Thus both SOX and NOX removal can be achieved in one apparatus at a capital cost of only \$30 million, which translates to a saving of 82% from the otherwise \$160+ million investment for installing a Scrubber and an SCR apparatus. In addition to providing lower capital costs, the Operating & Maintenance costs for a SiMB Sorbent Regenerator is about 50% less than that of a Scrubber and SCR combined. Finally, an additional \$1.2 million of commodities revenue can be generated from the sale of waste products to manufacture sulfuric acid, elementary sulfur, ammonium sulfate, or concentrated SO<sub>2</sub> gas.

### **List of Customers:**

Current: A company worth \$8 billion, based in China has expressed interest in installing the apparatus in one of its industrial setups in China.

Potential: Coal based Power Plants, Glass, Cement industries and Iron and steel industries based in USA and China.

### **List of Competitors:**

Various utility companies with traditional technologies such as Scrubbers, SCR, Checkered bricks, Air-fin Heat Exchangers etc.

### Presenting Executive: Chinmaya Dubey

Phone: 678-662-2586 Email: cdubey@regreentech.com

Dubey is the founder and interim CTO of ReGreen Technologies. He has a Masters in Operations Research, Industrial and Systems Engineering from Georgia Tech and holds a Bachelors degree in Mechanical Engineering. He is co-inventor of the technology.

### **Key Management:** Number of Employees: 4

Prerit Agarwal, Founder and interim CEO. In his previous work experience he developed a keen understanding of the working of a renewable energy company

Rikhav Parikh, Founder and interim COO. Presently involved in research focused on dynamic multi-attribute approaches for regional energy portfolio selection

Chinmay Dubey, Founder and interim CTO. Masters in Operations Research, Industrial and Systems Engineering at Georgia Tech. Co-inventor of the technology

Last 12 months revenue: (\$5,000)	Financing sought: \$2,000,000
Outside equity investment to date: N/A	Status: Seed Stage

### **Solid Carbon Products, LLC**

1959 North 1450 East Provo, UT 84604

Phone: 801-376-3879 Fax: 801-374-9107

### **Company Description:**

Solid Carbon Products LLC (SCP) is a privately held corporation, formed in 2009 by Dallas Noyes and Gay Wyn Quance to commercialize the CO<sub>2</sub> catalytic converter which they developed and patented. The CO<sub>2</sub> catalytic converter profitably transforms CO<sub>2</sub>, whatever the source, into solid carbon products that are valuable commodities (including carbon nanotubes, graphite, carbon black, etc.), and delivers a permanent means of sequestration. The catalytic converter can, for example, take the CO<sub>2</sub> effluent from a separation unit at an emissions source and profitably transform the waste stream into valuable carbon nanotubes. The company's initial strategy is to produce and sell carbon nanotubes, because they are the strongest material known, very light, electrical and thermal conductors and black body radiators with very broad potential applicability in enhancing existing materials.

### **Business Strategy/Competitive Advantages/Market Opportunity:**

SCP produces high quality carbon products, including carbon nanotubes CNTs, using CO<sub>2</sub> as the carbon source. The process used to produce CNTs consumes approximately 3.5 tons of CO<sub>2</sub> net per ton of CNTs, while emitting only pure water. The proprietary chemistry produces high quality, high purity products at industrial volumes at low cost. The company sells these products to resins and plastics compounders, and to papermakers who turn them into materials suitable for use in composites and plastics fabrication. CNT products have a competitive advantage in these markets because they are lighter and much stronger than current materials and are also excellent electrical and thermal conductors. The company also sells the CNTs to battery, fuel cell, and capacitor vendors who need ultra high surface area electrodes to improve power and energy densities. While the advantages of CNTs in a huge variety of applications have been thoroughly studied, the cost has been prohibitive for broad use. SCP has developed the breakthrough process that results in industrial scale, high quality CNT production at costs that allow rapid market expansion.

### **List of Customers:**

Currently in acceptance testing of SCP products: composite resin and prepreg vendors, high performance sporting goods manufacturers, battery and fuel cell developers, high performance automotive, thermoplastics compounders and military suppliers

Potential customers: high performance metals, electronics, electronics printers, solar cell manufacturers, electrical cable manufacturers, high performance electrical motor manufacturers

### **List of Competitors:**

SCP is aware of over 90 competitors producing carbon nanotubes, none of which use  $CO_2$  as the carbon source. High volume competitors include Bayer Materials, Arkema, and Toray. Major competitors use either hydrocarbon pyrolysis or the Boudouard reaction as the route to CNT production. Neither of these routes have the cost or quality advantages of the  $CO_2$  catalytic converter.

### **Presenting Executive: Dallas B Noyes, PE**

Phone: 801-376-3879 Email: dallas.noyes@gmail.com

Noyes is a registered mechanical engineer with extensive chemical processing experience. He has experience as a senior executive in engineering and technology companies. His passion is dreaming new dreams and making them real. His current devotion is to the CO<sub>2</sub> catalytic conversion process that SCP is commercializing.

### Key Management: Number of Employees: 4

Rod Brower, General Manager. Sales and marketing management, 35 years executive experience Bill Richardson, Operations Manager. 35 years executive experience

Dallas Noyes, CTO. Inventor of CO<sub>2</sub> catalytic converter, Co-founder SCP, 30 yr executive experience Gay Wyn Quance, VP Pro-serv. Co-founder SCP, 30 years project management and professional services executive

Last 12 months revenue: (\$0)	Financing sought: \$10,000,000
Outside equity investment to date: \$0	Status: Early Stage

### Sunnovations, Inc.

www.sunnovations.com 1616 Anderson Road McLean, VA 22102

Phone: 703-286-092 Fax: 504-910-0441

### **Company Description:**

Sunnovations' patent-pending technology will disrupt the home energy efficiency sector by fulfilling the promise of solar power as a ubiquitous alternative for water heaters in American homes. The company launched commercially in June 2010 in the mid-Atlantic market through its solar professional Installer Partner channel, having completed a 6-month beta customer program, and following 2.5 years of research and development. This privately held company was founded in March 2008 by Arnoud van Houten with early-stage financing from Dutch angel firm Solaq BV.

### **Business Strategy/Competitive Advantages/Market Opportunity:**

Sunnovations' core IP is a passive pump mechanism which uses solar energy to circulate heat transfer fluid and maintain freeze protection without the need for an electric pump, controller, or sensors. Removal of these active components enables 33-50% less cost to the end-purchaser, easier and more profitable installation for installers, and 65% fewer system failure points than existing systems in the market. Sunnovations was recently notified that all of its patent claims were accepted following review under the USPTO's fast track Green Technology pilot program.

Sunnovations sells its systems directly to solar professional installers (rather than through wholesalers). This sales strategy and related channel support program are differentiated in the sector, with the company selling exclusively through premier-branded firms. Primary market research shows a substantial price umbrella for solar hot water systems in the U.S. market, with competing systems wholesaling for between 150-225% more.

The target end-use is U.S. residential retrofits, where \$5.3 billion water heaters are sold annually. Although the United States solar hot water segment is currently small (approx. \$250mm), a convergence of macro trends and past U.S. experience suggests growth well past \$1 billion within 5 years. These factors include ongoing and permanent changes in consumer attitudes, the rising cost of power, durable incentives, and alternative energy financing.

### **List of Customers:**

Current: Sunnovations has an established sales channel throughout its mid-Atlantic launch market; active Installer Partners include SECCO, Vox Energy, Solar Services, Continuum, Southern Energy Management, and Efficient Home Construction, with another five installers as "trial partners." All told, they represent potential annual sales of \$4mm and include three of the largest solar thermal installers in the region.

Potential: Strategic partnerships with utilities, community co-ops, and production home builders.

### **List of Competitors:**

Tankless and traditional water heaters are existing alternatives but lack the cost and carbon footprint reduction attributes of solar hot water technology. The competitive landscape in the U.S. market is very fragmented. The EU is a much more mature market (\$4 billion in 2009) with several larger players who have presence but not major impact in the United States. In all cases, competitors are materially more expensive and have technical drawbacks not found in Sunnovations' system.

### **Presenting Executive: Matt Carlson, CEO**

Phone: 571-228-7737 Email: matt@sunnovations.com

Carlson co-founded and led Pangea Ltd., a telecom infrastructure firm that raised \$450 million in capital (including \$140 million in VC) and built operations in 10 countries. He was a finalist for Ernst & Young's Entrepreneur of the Year Award, and received a B.A. from Duke and an M.B.A. from Georgetown.

### Key Management: Number of Employees: 2

Matt Carlson, CEO. See Presenting Executive above

Arnoud van Houten, Founder, President, and CTO. Founder/CEO of mAdch, a VC-funded wireless ASP

Last 12 months revenue: Nominal	Financing sought: \$2,000,000
Outside equity investment to date: \$250,000	Status: Early Stage

### **ThermalCentric Corporation**

www.thermalcentricclean.com 4616 25th Ave. N.E., PMB 553 Seattle, WA 98105

Phone: 206-612-1197 Fax: 480-247-4336

### **Company Description**

ThermalCentric Corporation was incorporated in Delaware in 2006 and is privately held by the four members of the core management team. ThermalCentric is commercializing corrosion-free heat recovery systems (heat exchangers, recuperators, condensers). Its products are based on patent-pending designs using advanced carbon materials originally developed by Oak Ridge National Laboratory (ORNL). The company holds an exclusive field of use license from Battelle/ORNL for a broad range of energy and corrosion resistant applications. ThermalCentric also has pending U.S. and International patents.

### **Business Strategy/ Competitive Advantages/ Market Opportunity:**

ThermalCentric designs and manufactures waste heat recovery systems for highly corrosive exhaust gas streams. These systems will be sold both directly to customers and through established global distributors.

The competitive advantages are an exclusive field of use license, fundamental pending patents that cover critical manufacturing techniques, and a highly conductive and corrosion free carbon material that is cost effective for broad commercial adoption. The product designs are 10 to 20 times more efficient than traditional metal heat recovery products and can withstand highly corrosive exhaust streams.

The emerging waste heat recovery market is valued at \$250 billion (U.S. only). Year 5 revenues will exceed \$250 million primarily from 200 unit sales to just two potential customers who represent far less than 1% of the potential U.S. product application sites identified in the EPA database. This revenue projection is also supported by an independent commercialization study prepared for ThermalCentric and funded by the Department of Energy (DOE). Industrial stacks are just one example of waste heat sources and there are over 670,000 in the U.S. alone. Additionally, the products will compete in the current U.S. market for corrosion-resistant heat exchangers, which was valued at \$7 billion in an independent commercialization study.

### **List of Customers:**

Current: Two proposed commercial pilots with Dow Chemical and DTE (formerly Detroit Edison).

Potential: All energy producers that use fossil fuels, as well as virtually all energy intensive industries (i.e., chemical, pulp & paper, cement, metal manufacturing, plastics, petro-chemical, alumina).

### **List of Competitors:**

The current competition is limited to non-price sensitive applications. Although silicon carbide, titananium, and teflon are commercially viable, they have been unable to gain broad commercial acceptance due to their high cost and low efficiency (titanium and teflon).

### Presenting Executive: Dan Bariault, J.D., M.B.A., M.I.M.

Phone: 206-612-1197 Email: dbariault@thermalcentric.com

Bariault has an extensive international and domestic background in business, law, and technology, including 20 years of experience with technology startups.

### **Key Management:** Number of Employees: 4

Dan Bariault, See Presenting Executive above

Brian Thompson, is an expert in heat transfer and heat exchanger design

Ching-Long Ong is an expert in material science, specifically in carbon composites

Paul Redman has extensive experience in manufacturing, automation and mass production

Last 12 months revenue: (\$375,000)	Financing sought: \$2,000,000
Outside equity investment to date: \$1,000,000 Grants (done)	Status: Early Stage

# Tour Engine, Inc.

www.tourengine.com 6340 Raydel Ct. San Diego, CA 92120

Phone: 619-920-1623 Fax: 619-463-9187

#### **Company Description:**

Tour Engine, Inc. is a privately held corporation that was incorporated on December 2005 by Hugo and Oded Tour. The company develops a patented split-cycle combustion engine with more than 50% efficiency gain and significant reduction in noxious emissions over common engines. Measurements from a running gasoline-based prototype and simulations done by independent consultants and by a leading OEM reinforce the expected performance leap. The unique opposed-cylinder configuration of TourEngine™ allows superior thermal management and an efficient gas transfer compared to other split-cycle designs. Notably, the TourEngine design is based on standard cylinder/piston technology reducing barrier for its adoption. TourEngine can revolutionize the efficiency of internal combustion engines and dominate multiple markets.

#### **Business Strategy/Competitive Advantages/Market Opportunity:**

The market segments that benefit the most from a more efficient engine are those in which engines operate for prolonged durations, such as electric generation, marine, utility vehicles, and trucks. Among those segments, small gasoline generators and appliances used for construction, agriculture, and mining are our first target for product development and rapid market penetration (a cumulative market of over \$2 billion, annually). Once TourEngine is established as one of the most efficient generator engines, its spectrum of potential application will be broad, and its adoption by major OEMs could be rapid.

#### **List of Customers:**

Primary direct customers for Tour Engine, Inc. are the major OEMs. Current interest in TourEngine is encouraging: Six out of the 10 largest OEMs are reviewing the company's technology. One OEM has already independently modeled the TourEngine, and is considering a joint development.

#### **List of Competitors:**

TourEngine is facing competition from: 1) gradual improvements in existing mainstream technologies, such as new gasoline and diesel engines, and future HCCI engines; 2) technology startups like EcoMotors, Achates Power, and cleeves developers of junker diesel engines; and 3) the Scuderi Group, a developer of a different split-cycle engine.

#### **Presenting Executive: Oded Tour, CEO**

Phone: 619-920-2623 Email: oded@tourengine.com

Tour, holds a Ph.D. in biophysics from the Hebrew University of Jerusalem. He has more than 18 years of experience conducting scientific research, including six years at the UCSD laboratory of Dr. Tsien, the 2008 Nobel Laureate in chemistry. He utilizes this experience to oversee the entire range of operations, including research and development and business development efforts.

#### **Key Management:** Number of Employees: 5

Oded Tour, CEO and Co-founder. 18 years of scientific research experience

Retired Lt. Colonel Hugo Tour, CTO and Co-founder. Tour Engine inventor

Haggai Schwartz, VP Business Development. 10 years of BD and management consulting experience

Ehud Sivan, COO, Israel operations. 18 years of R&D experience, and 10 years of executive at several start ups

Chris Atkinson, Advisory Board. Professor of Mechanical and Aerospace Engineering at West Virginia University and a Director at WVU CAFEE center

William Sirignano, Advisory Board. Professor of Mechanical and Aerospace Engineering at the University of California Irvine

Last 12 months revenue: (\$100,000)	Financing sought: \$5,000,000
Outside equity investment to date: \$700,000 Seed	Status: Early Stage – Round A

# VanDyne SuperTurbo, Inc.

www.vandynesuperturbo.com 200 West Mountain Ave., Suite A-105 Fort Collins, CO 80521

Phone: 970-407-0005 Fax: 480-393-4272

#### **Company Description:**

VanDyne SuperTurbo, Inc. is a privately held Delaware C Corporation that was formed in September 2009 as a result of a spinout from Woodward Governor Co. (NASDAQ:WGOV). Woodward Governor has invested over \$4.5 million in the development of the technology but chose to spin it out as the significant opportunities were in non-Woodward core markets of cars and truck manufacturers. Woodward still retains an equity interest and provides key support with some of the company's product development efforts. At the time of the spin out, the company already had several patents protecting its unique technology and since that time over 20 more have been applied. The SuperTurbocharger is the first integrated system capable of Supercharging, Turbocharging and Turbocompounding, and provides all piston engine manufacturers with a powerful solution that directly addresses a pressing need to meet ever stringent emissions compliance without adversely impacting the engine's operating performance. Current estimates are that over 4,000 pounds of CO<sub>2</sub> per vehicle is eliminated annually per passenger vehicle. For over the road diesel trucks, the annual elimination of CO<sub>2</sub> emissions increases to over 17 tons.

#### **Business Strategy/Competitive Advantages/Market Opportunity:**

The market opportunity for SuperTurbochargers is broadly defined as all piston engines in the world larger than 500cc of which over 70,000,000 are manufactured annually. The annual market for turbochargers is currently 19 million units valued at \$10 billion. Demand is projected to grow to over 40 million units annually by 2016 at a value of \$20 billion. VanDyne's target customer base includes both Automotive and Heavy Truck Fleets. The company's strategy is to cultivate several customers in these segments through a stringent evaluation and validation process as upon approval they will commit to significant multi-year production contracts.

#### **List of Customers:**

Current: VanDyne is currently engaged with 4 customers including the U.S. Army, Department of Energy/Cummins and the National Science Foundation. In addition the company has an extensive product validation under way with what is expected to be its launch consumer automotive customer. This current range of customers covers 2 liter engines up to 18 liters in size and includes both diesel and gasoline.

Potential: All engine manufacturers in the world greater than 500cc in displacement.

#### **List of Competitors:**

Primary competitors include traditional turbo equipment manufacturers including Borg Warner, Honeywell, Mitsubishi, Hitachi, and Bosch. There are also other competitive technologies including hybrid electric vehicles.

#### Presenting Executive: Ed VanDyne, Founder and CEO

Phone: 970-407-0005 Email: ed@vandynesuperturbo.com

VanDyne is the company's founder and CEO. He is a successful inventor, entrepreneur, and engineering manager who has been selling technology into the automotive industry for over 17 years. His prior company, which was a spinout of MIT, was sold to Woodward Governor in 2004 at which time he became the director of research and began development of the SuperTurbochager technology.

#### **Key Management:** Number of Employees: 14

Ed VanDyne, CEO. Co-Inventor of the SuperTurbocharger technology

Mark Herbst, COO. 25+ years in the electronics and high-tech manufacturing industry

Kevin Stover, Co-Founder/VP Sales & Marketing. 15 years of global sales in the Company's target market and customer base Volker Schumacher, Chief Scientist. 25+ years in research division of Volkswagen and extensive experience in the design of turbine power plants

Last 12 months revenue: \$183,000	Financing sought: \$10,000,000
Outside equity investment to date: \$2,500,000 Note Round. \$1,000,000 Grants (In Process)	Status: Early Venture

# ZeaChem, Inc.

www.zeachem.com 165 S. Union Blvd., Suite 380 Lakewood, CO 80212

Phone: 303-279-7045 Fax: 303-279-9537

#### **Company Description:**

ZeaChem is a developer of biorefineries for the conversion of cellulosic biomass into advanced biofuels and bio-based chemicals. Several factors differentiate ZeaChem's technology from others in the industry: Feedstock agnostic—ZeaChem's technology can utilize various feedstocks including wood, grasses, and residues. The hybrid process— ZeaChem incorporates biochemical and thermochemical processes to deliver the highest theoretical yield of any biorefinery technology, a 40% advantage compared to biochemical only or thermochemical only processes. No new equipment or bugs—ZeaChem uses proven technology and process components integrated in a new and novel way, which significantly reduces scale-up risk. Naturally occurring acetogens require no GMO. Product flexibility—ZeaChem's technology can produce C2 (acetic acid, ethyl acetate, ethanol, ethylene), C3 (propionic acid, propanol, propylene), C4 (butanol) and C6 (hexene, hexanol) products. ZeaChem was incorporated in 2002 and has raised \$40 million to date. ZeaChem is a private company with venture capital financing from Firelake Capital, Globespan Capital Partners, MDV, and PrairieGold Venture Partners. Valero Energy Corporation is also an investor. In December 2009, ZeaChem was selected by the Department of Energy for a \$25 million grant to support construction and operations at ZeaChem's demonstration scale biorefinery in Boardman, OR.

# **Business Strategy/Competitive Advantages/Market Opportunity:**

ZeaChem offers the fuel and chemical industries the lowest cost, highly efficient, renewable alternative to traditional petroleum feedstocks. ZeaChem's mature technology will compete with \$50/barrel oil and have capital costs of \$4/gal and operating costs of <\$1/gallon. Life cycle analysis has determined that ZeaChem cellulosic ethanol has 94-98% less greenhouse gas (GHG) emissions than conventional gasoline. ZeaChem is currently deploying the C2 product platform, including the \$2.2 billion ethyl acetate global market and the \$32 billion cellulosic ethanol U.S. market. The C3 product platform will be deployed next (currently lab scale), which includes the \$95 billion propylene global market. ZeaChem is seeking funding to commercialize ethyl acetate production.

#### **List of Customers:**

ZeaChem currently has an off-take agreement with INEOS Oxide for ethyl acetate, which will begin production in 2011 from the 250,000GPY demonstration scale Boardman, OR facility.

#### **List of Competitors:**

Petroleum and natural gas based feedstocks for fuel and chemical production are the key competitors. Biorefining industry competitors include: Range Fuels, Coskata, Gevo, Mascoma, and others.

#### **Presenting Executive: James Imbler, CEO and President**

Phone: 303-248-7772 Email: jimbler@zeachem.com

Imbler is an accomplished senior executive with experience in directing multi-billion dollar energy, petroleum, refining, chemical, and trading operations. Imbler has been president and CEO of FuelSpot, a venture-backed Internet trading platform for fuels; Fuels Management, a coal upgrading business; and CEO Equity, a leveraged buyout firm. Prior to these assignments, Imbler was president of the Koch Petroleum Group, where he was responsible for the refining, pipeline, energy and petroleum, asphalt, and trading businesses.

#### **Key Management:** Number of Employees: 26

Dan Verser, EVP R&D, Founder. Experienced venture manager in chemicals & biotechnology sectors (Chronopol) Tim Eggeman, CTO, Founder. Expert chemical process modeler (Chronopol, C.W. Nofsinger Co.)

Andreas Vietor, CFO. 20 years experience in corporate and project financial analysis and fundraising (Evergreen Energy, Stifel, Nicolaus, & Co)

Last 12 months revenue: pre-revenue	Financing sought: \$10,000,00
Outside equity investment to date: \$40 million + \$25 million DOE grant	Status: Early Venture

#### **ZERE**

www.zerechp.com 851 Cherry Ave. # 27/202 San Bruno, CA 94066 650-703-0543

Fax: 650-595-4954

#### **Company Description:**

ZERE (Zero Emissions Renewable Energy) is a privately held business of the Clean EnGen Group, LLC, formed in 2008. ZERE filed a patent for its core technology in 2009 and an additional patent in 2010. ZERE's founders include the Chief Technology Officer with 30+ years experience in the energy field managing all sides of the power generation business including gas turbine, natural gas, and alternative energy, prior to ZERE's solid fuel chemical looping innovation to generate energy. The balance of the ZERE team consists of the CEO with 20+ years of operational experience bringing products to market in the high tech industry with the last several years leading early stage clean technology companies, plus the Chief Engineering Officer having 15+ years of engineering and project management experience in energy and gas turbine businesses. The ZERE management team's combined experience in power generation, engineering, and operations gives ZERE a unique advantage in bringing their biomass conversion technologies to market.

#### **Business Strategy/Competitive Advantages/Market Opportunity:**

ZERE produces energy from woody waste: tree/plant clippings, paper waste, and construction debris – whether it is recycled or destined for landfills. ZERE energy plants convert this biomass waste into heat and power with no greenhouse gas (GHG) emissions. These plants are located on-site where the biomass waste is, providing power and heat to our customers in exchange for their waste, with excess energy sold back to the grid. ZERE provides a reliable independent distributed energy source without GHG emissions. How it works: The ZERE plant oxidizes wood-based biomass fuel with a solid-state oxygen carrier in a fluidized bed reactor, yielding steam to drive a turbine for power generation and also providing heat. Waste CO2 is inherently captured, liquefied, and sold. ZERE's biomass waste-to-energy plants have the competitive advantage that they operate around the clock, as compared with solar and wind installations; ZERE plants are small at roughly 60 feet by 60 feet and use 1% of the space required by solar or wind for the same power produced. Plus, we dispose of waste that would otherwise go to overflowing landfills, saving our customers millions of dollars annually. ZERE is targeting markets with high electricity rates greater than 9 cents per kWh such as California, Nevada, and the Northeast. Our highly efficient system requires only 5,000 tons/year of biomass waste for each 1 MW of power generated. Since ZERE is targeting customers with large amounts of biomass to construct on-site plants, we eliminate the costs associated with transporting biomass for conversion to power and ethanol.

#### **List of Customers:**

Current: ZERE design of pilot scale test rig suited for NREL.

Targeted/Potential: Waste aggregators, hospitality industry, and bio-refineries.

#### **List of Competitors:**

ZERE is aware of no direct competitors in the biomass-to-energy market in the U.S. using a chemical looping process with metal oxides. Some applications of related technology are being explored in Europe. In the United States, ZERE would be competitive with solar and wind installations at the distributed energy scale of 1 – 10 MW.

### Presenting Executive: Laura Draxler, M.B.A., M.S. Engineering

Phone: 650-703-0543 Email: ldraxler@zerechp.com

Draxler brings 20 years experience in the high tech industry to ZERE, including H-P and Agilent Technologies; early stage business strategy and project management, and Cleantech Open Chair and Mentor. She has senior management experience in R&D and Manufacturing and has shipped several products.

#### **Key Management:** Number of Employees: 10

Laura Draxler, CEO, Chief Operating Officer. See Presenting Executive above	Financing sought: \$2 - 3,000,000
George Touchton, Chief Technology Officer. 30 years power industry experience	Status: SEED

# **Speaker and Panelist Biographies**

### **Douglas Jay Arent**

# **Executive Director, Joint Institute for Strategic Energy Analysis National Renewable Energy Laboratory**

Doug Arent is executive director of the Joint Institute for Strategic Energy Analysis at the National Renewable Energy Laboratory (NREL). He specializes in strategic planning and financial analysis competencies; clean energy technologies and energy and water issues; and international and governmental policies. In addition to his NREL responsibilities, Arent is Sr. Visiting Fellow at the Center for Strategic and International Studies, and an author and expert reviewer for the IPCC Special Report on Renewable Energy, a member of the US Government Review Panel for the IPCC Reports on Climate Change, and was recently appointed as a Coordinating Lead Author for the 5th Assessment Report.

Arent was appointed in 2008 to serve on the National Academy of Sciences Panel on Limiting the Magnitude of Future Climate Change. Arent is on the Executive Council of the U.S. Association of Energy Economists, a Member of the Keystone Energy Board, and is on the Advisory Board of E+Co, a public purpose investment company that supports sustainable development across the globe. He serves on the Chancellor's Committee on Energy, Environment and Sustainability Carbon Neutrality Group, University of Colorado. Arent was the chair of the Quantitative Work Group in support of the Clean and Diversified Energy Advisory Council of the Western Governor's Association.

Prior to coming to his current position, Arent was Director of the Strategic Energy Analysis Center at NREL from 2006-1010. Before joining NREL, he was a management consultant to clean energy companies, providing strategy, development, and market counsel. Previous positions held include: director of strategic marketing and business development at Network Photonics; director of Media Gateway Products and strategic planning manager at Lucent Technologies (now Avaya); and vice president of business development for Amonix Inc.

Arent has a Ph.D. from Princeton University, an M.B.A. from Regis University, and a B.S. from Harvey Mudd College in California.

### Dan E. Arvizu

# Director

**National Renewable Energy Laboratory** 

#### **President**

### **Alliance for Sustainable Energy**

Dan E. Arvizu became the eighth director of the U.S. Department of Energy's (DOE) National Renewable Energy Laboratory (NREL) on January 15, 2005. NREL, located in Golden, Colorado, is DOE's primary laboratory for energy efficiency and renewable energy research and development. NREL is operated for DOE by Alliance for Sustainable Energy, LLC (Alliance). Arvizu is president of the Alliance and also is an executive vice president with the Midwest Research Institute, headquartered in Kansas City, Missouri.

After more than three decades of professional engagement in the clean energy field, Arvizu has become one of the world's leading experts on renewable energy and sustainable energy. In the past five years, he has testified before Congress four times, given state-of-technology presentations at four Congressional caucus briefings, and keynoted 17 major national and international conferences. As NREL's director, he has established and implemented a new institutional strategy to position the lab for higher impact and contributions to national energy challenges. In the past five years, he has overseen an increase of more than 50% in the lab's operating budget and has helped attract over \$400 million for new infrastructure.

Prior to joining NREL, Arvizu was the chief technology officer with CH2M HILL Companies, Ltd. Before joining CH2M, he was an executive with Sandia National Laboratories in Albuquerque, New Mexico. He started his career and spent four years at the AT&T Bell Telephone Laboratories.

In 2004, Arvizu was appointed by the President and confirmed by the full U.S. Senate to be on the 24-member National Science Board, which is the governing board of the National Science Foundation and the national science policy advisory body to the President and the Congress.

Arvizu serves on a number of boards, panels, and advisory committees including the American Council on Renewable Energy Advisory Board, the World Economic Forum's Global Agenda Council on Alternative Energies, the Intergovernmental Panel on Climate Change Working Group III, the Great Minds in STEM Board of Directors, and the Colorado Renewable Energy Authority Board of Directors.

He has a B.S. in Mechanical Engineering from New Mexico State University and an M.S. and Ph.D. in Mechanical Engineering from Stanford University.

#### **Forest Baskett**

#### **General Partner**

#### **New Enterprise Associates (NEA)**

Forest Baskett joined NEA in 1999 as a venture partner and became a general partner in 2004. Baskett focuses on information and energy technology investments. He is the NEA representative on the boards of AstroWatt, Audience, Chelsio Communications, Fulcrum Microsystems, Serious Materials, SiBEAM, and SuVolta. He also assists Alta Devices, Aprius, Azuray Technologies, Bandgap Engineering, Conviva, Fusion-io, Illumitex, Luxtera, NovaTorque, Solar Junction, Solar Storage Company, Svaya Nanotechnologies, Tableau Software, and Tintri as either a board member, observer, or advisor, usually in conjunction with another member of the NEA investing staff. In the past he has worked with, among others, Aeluros, Arch Rock, Atheros Communications (NASDAQ: ATHR), Data Domain (NASDAQ: DDUP), E2O, Nanochip, Newisys, RingCube Technologies, Telegent Systems, and T-RAM Semiconductor. Baskett also previously held advisory positions with FineGround, PolyServe, ReShape, and SMIC.

Prior to NEA, Baskett was senior vice president of R&D and chief technology officer of Silicon Graphics Inc. He founded and directed the Western Research Laboratory of Digital Equipment Corporation from 1982 to 1986 before joining SGI. Prior to that, he was a professor of Computer Science and Electrical Engineering at Stanford University from 1971 to 1982. Baskett also spent two years at Los Alamos National Laboratory building an operating system for the original Cray-1 computer and a year and a half at Xerox Palo Alto Research Center as a principal scientist doing VLSI research. At Stanford, he worked with Andy Bechtolsheim on the SUN workstation project, with Jim Clark on the Geometry Engine project, and with John Hennessy on the MIPS microprocessor project. Baskett received a B.A. in Mathematics from Rice University, a Ph.D. in Computer Science from the University of Texas at Austin, and is a member of the National Academy of Engineering.

#### **Alan Bickerstaff**

#### **Partner, Technology & Emerging Companies**

**Andrews Kurth, LLP** Alan Bickerstaff is a corporate and securities partner who focuses on representing entrepreneurs and public and private emerging growth companies on formation, operations, and corporate governance matters; securities law reporting and compliance matters; private equity and venture capital financings; public offerings and mergers and acquisitions.

Bickerstaff represents companies in a wide variety of industries, including the software, internet, energy, semiconductor, renewable energy, clean technology, life sciences, and telecommunications industries.

Bickerstaff has also represented numerous institutional investors in venture capital financings and private equity transactions, as well as underwriters in various public securities offerings.

Bickerstaff earned his B.B.A in Finance from the University of North Texas and he earned his J.D. from the University of Texas School of Law.

### **Lionel Bony**

# Director, Office of the Chief Scientist Rocky Mountain Institute

Lionel Bony is the director of the Office of the Chief Scientist (OCS) at Rocky Mountain Institute. In this role, Bony manages OCS's operations and staff, and works closely with Amory Lovins and the senior leadership team on RMI's strategy. Bony is also responsible for RMI's 10xE (engineering and design efficiency), Solar PV Balance of System, and Reinventing Fire (roadmap to take the US off fossil fuels by 2050) initiatives.

Prior to his current role, Bony co-founded RMI's Transportation team, where his research and consulting projects centered on vehicle platform efficiency and electrification.

Before joining RMI, Bony worked for L'Oréal, as a financial analyst in Madrid and a product manager in Paris, and at Conservation International in Bolivia, where he focused on the NGO's ecotourism strategy.

Originally from France, Bony is a 1999 graduate of SciencesPo in Paris, and a 2006 graduate of the Harvard Business School.

#### **Paul Bundschuh**

### **Vice President, Business Development** Ideal Power Converters, Inc.

Paul Bundschuh began several successful businesses (Motorola/Freescale Semiconductor, Waves Audio) as a signal processing solutions supplier (semiconductors & licensing) in consumer electronics. Bundschuh is assisting Ideal Power Converters, Inc. to create an industry transformation applying its new signal processing technology in electronic power converters for photovoltaic and other applications.

#### **Tom Clark**

#### **Executive Vice President**

# **Metro Denver Economic Development Corporation**

Tom Clark is executive vice president of the Metro Denver Economic Development Corporation and the Denver Metro Chamber of Commerce. He has over 30 years of economic development experience at the state, regional, county, and city levels. Clark's career spans four decades from director of Commercial and Industrial Development for the Illinois Department of Commerce and Community Affairs, through positions with the Fort Collins, Colorado Chamber of Commerce, the Greater Denver Corporation, the Boulder Chamber of Commerce, the Jefferson Economic Council, and the Denver Metro Chamber of Commerce. He holds bachelor's degrees in speech and psychology from Minnesota State University and an M.P.A. from the University of Illinois. Clark was the founder and first president of the Metro Denver Network, the Metro Denver region's first economic development program, for which he received the Arthur D. Little Award for Excellence in Economic Development. He was chosen as one of the nation's top economic development professionals by the Council on Urban Economic Development. In 2007, Clark was awarded the Business Person of the Year by the Colorado Chapter of the Public Relations Society of America.

#### **David Danielson**

### **Program Director ARPA-E**

David Danielson joined ARPA-E in May 2009 as its founding program director, where he leads the agency's efforts in electrical energy storage for vehicles and advanced materials for clean energy. Prior to joining ARPA-E, Danielson was a clean energy venture capitalist with General Catalyst Partners, a Boston-based early stage venture capital firm with \$1.7 billion under management, where he co-founded the firm's clean energy practice and helped build companies in solar photovoltaics, solar thermal power, wind power, advanced biofuels, bio-gas, carbon capture and storage, and advanced lighting. He is the author of more than 20 scientific articles in the field of advanced materials and is the holder of one U.S. patent licensed by industry. He was also the founder of the MIT Energy Club, the largest and most active student energy club in the world, and was a co-founder of the MIT Energy Conference and the New England Clean Energy Council. He holds a Ph.D. in Materials Science and Engineering from MIT, where he was awarded the Karl Taylor Compton Prize-MIT's highest award presented to a student-and a B.S. in Materials Science and Engineering from University of California, Berkeley, where he graduated summa cum laude and Phi Beta Kappa.

#### John Denniston

#### **Partner**

### **Kleiner Perkins Caufield & Byers**

John Denniston is a partner with Kleiner Perkins Caufield & Byers (KPCB). At KPCB, Denniston has worked with a wide variety of portfolio companies, with a primary emphasis on the Greentech industry. Denniston was a member of the KPCB Partner team that many years ago conceptualized and launched KPCB's Greentech investment initiative. Since then, KPCB has been an active investor in the Greentech field, having invested in start-up companies across a wide variety of sectors.

He is actively involved in Greentech public policy issues, having testified before several Congressional committees. Denniston serves on the Board of Advisors of the National Renewable Energy Laboratory. He is a frequent speaker at Greentech industry conferences.

Prior to joining KPCB, Denniston was a managing director and head of Technology Investment Banking, Western U.S. at Salomon Smith Barney. He also served on the Investment Committees for both Salomon's venture capital direct investment fund and CitiGroup's venture capital fund-of-funds. Before that, he was a partner at the law firm Brobeck, Phleger & Harrison, where he was the head of the firm's Venture Capital Practice Group, co-head of its Information Technology Practice Group, and served on the Investment Committee for its venture capital fund.

#### **Karina Edmonds**

# Technology Transfer Coordinator U.S. Department of Energy

Karina Edmonds was appointed technology transfer coordinator for the U.S. Department of Energy (DOE) in April 2010 by Secretary of Energy Steven Chu. Created by the Energy Policy Board Act of 2005, this is the first time that the Department has appointed a full-time person to fill this role. Edmonds is responsible for working with the Department's National Laboratories to accelerate the process of moving discoveries from the laboratory to the private sector, ensuring that America's scientific leadership translates into new, high-paying jobs for America's families.

In a statement, Secretary Chu said, "I am pleased to have Karina join our team at the Department of Energy. Having Karina oversee a coordinated, strategic effort on behalf of the Department will help increase the rate of successful technology transfers, creating clean energy jobs, and providing more solutions to our energy challenges."

Edmonds joined the DOE after working at the Jet Propulsion Laboratory (JPL) at California Institute of Technology where she served as director of JPL Technology Transfer. While at JPL, Edmonds also held positions in the Strategic Intellectual Assets Management Office as senior technology transfer specialist and in the Strategic University Research Partnership Office as manager before finally becoming the director of JPL Technology Transfer. In that position, her job duties included licensing technologies developed at both JPL and Caltech to industry and start-ups, managing the JPL patent portfolio, assisting Caltech start-ups, and managing prosecution of Caltech's patent filings. Edmonds is a registered patent agent with the U.S. Patent and Trademark Office.

Prior to her work at JPL, she worked as principal investigator at TRW, Inc. for internal research and development efforts. During her tenure there, she co-authored two patent applications in the area of noise reduction for the automotive environment.

Edmonds received a bachelor's degree in mechanical engineering from the University of Rhode Island. She holds a master's degree and a Ph.D. in aeronautics with a minor in material science from the California Institute of Technology in Pasadena, California.

# William (Bill) Farris

### Vice President, Commercialization and Technology Transfer National Renewable Energy Laboratory

William (Bill) Farris is the vice president for Commercialization and Technology Transfer at the National Renewable Energy Laboratory (NREL). He leads NREL's efforts to accelerate commercialization and the transfer of laboratory technologies to the marketplace. His organization is comprised of the licensing, sponsored research agreements, enterprise development, and innovation management functions at NREL. His recent initiatives include the establishment of the Colorado Center for Renewable Energy and Economic Development (CREED) which seeks to catalyze the expansion of the renewable energy economic cluster in Colorado and beyond, the creation of a clearinghouse for intellectual property developed at the nation's National Laboratories, and the streamlining of NREL's transaction processes for licenses and sponsored research agreements.

Prior to joining NREL, Farris was responsible for the Commercialization, Economic Development, Business and Competitive Intelligence, and Commercial Relationships offices at the Pacific Northwest National Laboratory (PNNL). In addition, Farris managed the new venture activities at the Pacific Northwest Division of the Battelle Memorial Institute and was a primary point of contact for interactions with Venture Capitalists.

Farris has a B.S. in Geological Sciences and an M.S. in Radiological Sciences from the University of Washington and an M.S. in Management of Technology from NTU. He is a member of the Association of University Technology Managers and the Licensing Executive Society.

#### **Adam French**

# Cleantech Designer In partnership with LUNAR

Adam French is a designer, engineer, and entrepreneur, with a passion for bringing the Cleantech future into the present. French is at his best when using design as a strategic tool to navigate complex problems at the intersection of business, technology, and human values. His current areas of interest include airborne wind energy, off-shore aquaculture, the relationship between humans and the ocean, and anything that catalyzes the business, technology, and behavioral innovations necessary for him thrive in a dynamic and healthy world with a balanced energy budget. He has collaborated with thinkers and doers at DEKA, Stanford, IDEO, Magnet, and LUNAR—where he has applied both his creative and his analytic skills to develop ultra-efficient water purification, load-carrying bicycles,

concentrated PV tracking structures, human powered energy generation devices, and the curriculum at Stanford's d.school. In approaching design problems, French draws as often on his experience as a class V river guide, substance abuse counselor, yacht builder, and mountaineer as he does from his formal training in Philosophy at Wesleyan University, and Product Design Engineering at Stanford University.

#### **Eric Giler**

# **Chief Executive Officer WiTricity Corporation**

Eric Giler is the chief executive officer of WiTricity Corporation of Watertown, Massachusetts, just outside of Boston, Massachusetts. WiTricity Corp. was founded in 2007 to commercialize an exciting new technology for wireless electricity invented two years earlier at the Massachusetts Institute of Technology (MIT). Prior to WiTricity, he was the chairman and chief executive officer of Groove Mobile, the world's leading mobile music service from 2006 until its acquisition by LiveWire Mobile in early 2008. Giler was the founder and served as the chief executive officer and president of Brooktrout Inc., a leading supplier of advanced hardware and software products for system vendors and service providers in the electronic messaging market, from 1984 until its acquisition by EAS Group, Inc. in 2005. Under Giler's leadership, Brooktrout grew to over \$150 million in annual revenue, and had a successful IPO in 1992.

Giler serves on the Boards of Directors of Soundbite Communications in Bedford, Massachusetts and Muse Research in Menlo Park, California. In addition, he serves as a Trustee of the Massachusetts Technology Leadership Council, is on the President's Advisory Council for Berklee College of Music, and is a Corporation Board Member of Partners Health Care. He is the author of eight patents. Giler holds a B.S. degree from Carnegie-Mellon University and an M.B.A. from the Harvard Business School.

#### **Steve Hane**

# President, Chief Executive Officer Ampulse Corporation

Steve Hane brings to Ampulse an outstanding performance record in leadership roles within both venture-backed technology start-ups and large-scale businesses. Prior to Ampulse, Hane was president and CEO of Picolight, Inc., a pioneer in designing and manufacturing the vertical cavity surface emitting laser (VCSEL), a key technology used in high-speed short-to-medium-distance optical interconnects. Making it one of the fastest-growing companies in optics, Hane orchestrated the successful \$125 million sale of Picolight to JDS Uniphase in May 2007.

From 2000 to 2004, Hane was vice president of Business Development for LightPointe Communications, a free-space optics manufacturer, playing a leadership role in strategic-partnership development with Cisco, Siemens, Corning, and Huawei. Prior to LightPointe, Hane was vice president of Sales in the Business Broadband Group of ADC Telecommunications, responsible for North American sales. Hane was instrumental in leading ADC's network transport and access product group to a \$500 million revenue run-rate, with more than 70 product approvals in an eight-year span of service.

Hane holds a bachelor's degree in Geological Engineering from the University of Minnesota's Institute of Technology. With his present efforts focused on emerging clean technologies, Hane serves on the advisory board of the University of Colorado's Deming Center for Entrepreneurship, was awarded the 2008 "National Clean Energy Entrepreneur of the Year" for early seed ventures at the 21st NREL Industry Growth Forum, and is a founder and member of the first Board of Directors for the launch of the Colorado Cleantech Industry Association (CCIA) that took place in early 2009. He is a regular speaker on issues relating to start-up companies, cleantech, and commercialization, and his business approach has been taught as case study at both the University of Colorado and the Harvard Business School.

#### **John Herrick**

#### **Senior Counsel**

### **Brownstein Hyatt Farber Schreck**

John Herrick is senior counsel in the Denver office of Brownstein Hyatt Farber Schreck and a member of the Natural Resources Group. He is working to further develop the sustainability and clean technology practice area for the firm.

Herrick has extensive experience in assisting private companies and public entities to form partnerships and secure funding for their clean energy projects, including wind, solar, and geothermal projects. He has helped structure new energy production facilities totaling over \$4 billion, structured the federal financing for the nation's first cellulosic biorefinery, and helped form research and development partnerships with private industry, academia and the National Renewable Energy Laboratory (NREL) in Golden, Colorado and the Department of Energy's (DOE) Office of Energy Efficiency and Renewable Energy.

Herrick is internationally recognized for a broad spectrum of activities in renewable energy. He is one of America's leading practitioners in assisting companies in entering into public and private partnerships in energy financing. He has unique and specialized insight into DOE grant financing and has worked on over 15 DOE loan guarantees. Herrick was instrumental in implementing the current DOE loan guarantee program under the Energy policy Act of 2005 and formed close working relationships with the officials charged with implementing that program and the DOE grant programs. In addition, he has experience in transactional practice, developing projects in all the major sectors of the renewable generation, renewable fuels, and energy performance contracting. He structured major project developments in the geothermal and solar generation in California, developed wind projects in Colorado, and biofuels projects throughout the Midwest, and helped establish, nationally, the federal energy savings performance contracting system.

An Adjunct Professor of Law at the University of Denver Sturm College of Law, Herrick teaches Renewable Energy & Energy Project Finance, the first law course in the nation concentrating on renewable energy.

Prior to joining the firm, Herrick served as chief counsel at the DOE's Golden office for 15 years. In this position he oversaw the operations of NREL and worked extensively in renewable energy development with the Western Area Power Administration, public utilities, energy entrepreneurs, project developers, and public policy makers. Prior to moving to Colorado, Herrick practiced energy, finance, and government contract law in Washington, D.C. where he developed various privatization initiatives using innovative financing techniques including energy development loan guarantees for the DOE from 1985 through 1992.

Herrick is frequently sought after to speak at national conferences on renewable energy and energy efficiency matters. He has recently spoken at the ABA Annual Meeting in NY, at a major federally-sponsored energy conference in Phoenix and at the premier biofuels conference in Washington, D.C.

### John Hickenlooper

#### Mayor

#### **City of Denver**

A geologist-turned brewpub pioneer who had never run for political office, John W. Hickenlooper was elected Mayor of Denver in 2003 and re-elected in 2007. In April 2005–less than two years into his first term–Time Magazine named the political newcomer one of the top five "big-city" mayors in America. Both Hickenlooper and Denver continue to gain national recognition for innovative approaches to sustainability, transit, arts and culture, ending homelessness, economic development, regionalism, and–of course–hosting the 2008 Democratic National Convention.

#### Seth A. Hindman

#### Industry Manager Autodesk, Inc.

Seth A. Hindman is an industry manager within Autodesk's Manufacturing Industry Group. In his current role, he enjoys the opportunity to actively engage with his customers, learning about their processes, opportunities, and vision. Through this interaction, he is able to help them confront their core business challenges by leveraging the extent of Autodesk's unique capabilities and industry partnership.

Before joining Autodesk in 2005, Hindman spent a decade working in the fluid power industry, designing products and developing systems for a variety of industries. As an engineering manager, he led a team of engineers through all phases of product development including concept, detail, analysis, test, and certification, as well as procurement and manufacturing. As a systems engineer, he worked onsite with customers to develop, implement, and optimize their custom systems. Hindman's industry experience and insight comes from working with some of the world's most influential and respected customers in the construction, mining, agricultural, material handling, and process plant sectors.

Hindman holds a B.S. in Mechanical Engineering which he earned from Portland State University in Portland, Oregon.

# **Christopher Jones**

# Investment Manager Dow Venture Capital

Christopher Jones is a member of the Venture Capital group at The Dow Chemical Company. Jones joined Dow in 1999 in Dow's Research Assignments Program. He next accepted a research role in Dow Core R&D in 2000, where he was responsible for developing new technology, troubleshooting chemical plants, and scaling-up technologies for new applications in the crystallization, distillation, and adsorption spaces. Jones then accepted a position in Dow New

Products R&D in 2006 to lead their Opportunity Identification Team.

He accepted his current role in Venture Capital in 2007, where he is responsible for identifying, evaluating, and structuring new investment opportunities in the physical sciences and water spaces. He is also responsible for managing existing direct investments.

Jones earned a B.S. degree in Chemical Engineering at Iowa State University in 1996 and a Ph.D. in Chemical Engineering with a Minor in Statistics from Iowa State University in 1999.

#### **Kef Kasdin**

#### **General Partner**

#### **Battelle Ventures and Innovation Valley Partners**

As a general partner of Battelle Ventures and Innovation Valley Partners, Kasdin focuses on investments in cleantech and communication technologies, working closely on identifying promising technologies, projects, and synergies with the National Laboratories that sole limited partner Battelle Memorial Institute manages or co-manages for the U.S. Department of Energy around the country.

Kasdin currently serves on the Boards of Directors of Aldis, Inc.; Ampulse Corp.; Planar Energy; and Rajant Corp. Active in the venture community, she sits on the Board of Directors of the National Association of Seed and Venture Funds and is a coauthor of Inside the Minds: Green Venture Capital (Aspatore Books, Nov. 1, 2009).

Kasdin has been involved in developing and executing strategy for high-technology companies for more than 20 years, including Sarnoff Corp. and 3Com Corp., where she was the company's first Executive in Residence, Office of the Chairman.

She became a technology-startup consultant in the late 1990s, a venture capitalist in 2000, and a founding member of the management team forming Battelle Ventures in 2003.

Kasdin holds a B.S.E. degree in operations research from Princeton University and an M.B.A. from the Graduate School of Business, Stanford University.

# **David Kirkpatrick**

# Managing Director SJF Ventures

David Kirkpatrick is managing director and co-founder of SJF Ventures, a cleantech and positive impact venture capital fund with offices in Durham, NC, New York City, and San Francisco.

SJF focuses on high growth, positive impact ventures and was founded in 1999. Kirkpatrick helped lead SJF's capitalization of two funds totaling \$45 million. SJF Ventures I and II have invested in 31 portfolio companies with more than \$500 million in sales, 128 facilities, and 4,500 employees. Kirkpatrick also co-founded SJF Institute, a non-profit corporation, which has assisted 1,800 positive impact enterprises across the U.S.

Previous to SJF, he founded and managed two other successful enterprises–KirkWorks, a cleantech investment research firm, and SunShares, a solar energy and recycling company. Kirkpatrick was named the national 2005 CDVC Practitioner of the Year by the Community Development Venture Capital Alliance and Recycler of the Year in 1996, the National Recycling Coalition's award for leadership in the recycling industry.

Kirkpatrick earned a B.A. in Physics and History from Duke University in 1982 and an M.B.A. from UNC Business School in 1991. He serves on the Boards of groSolar, B.B. Hobbs, EdMap, the NC Sustainable Energy Association, the Duke-Durham Neighborhood Partnership, and the Advisory Committee of the NYC Accelerator for a Clean and Renewable Economy. He is an avid gardener, bicyclist, and Dad.

#### **Rob Lamkin**

# Chief Executive Officer Cool Earth Solar

Rob Lamkin is CEO of Cool Earth Solar which is using innovative design to literally reshape solar. His 25 years of industry experience includes corporate officer positions at two Fortune 500 energy companies. Lamkin's name is well known and respected among developers and utilities alike. At Calpine, he had leadership responsibilities for power plant development, project construction, asset management, trading and marketing, and project finance. Over 10,000 MW of new power plant capacity was developed under his direction. As vice president at Mirant, Lamkin was responsible for completing the acquisition of 3,100 MW of power plants from PG&E and for managing those assets. With this background, Lamkin understands how smart design enables competitive economics and massive deployment of solar at utility scale levels.

# **Alexis Madrigal**

# Senior Editor The Atlantic.com

Alexis Madrigal is a senior editor covering technology for TheAtlantic.com. He's the author of a forthcoming book about the surprisingly long history of green technology, and the founder of 48 Hour Magazine, a high-speed media experiment that garnered attention from the New York Times and won a 2010 Knight-Batten Award for Innovation in Journalism. While at Wired.com, he built Wired Science into one of the most popular blogs in the world. The site was nominated for best magazine blog by the MPA and best science website in the 2009 Webby Awards. He also cofounded Haiti ReWired, a groundbreaking community dedicated to the discussion of technology, infrastructure, and the future of Haiti.

Madrigal is a visiting scholar at University of California, Berkeley's Office for the History of Science and Technology. Born in Mexico City, he grew up in the exurbs north of Portland, Oregon, and now lives in San Francisco's Mission District.

# Lawrence M. (Marty) Murphy

# Director, Enterprise Development Program National Renewable Energy Laboratory

Lawrence M. (Marty) Murphy conceived, developed, and now manages the National Renewable Energy Laboratory's (NREL) Enterprise Development Program (EDP). This program is aimed at building linkages and working relationships among the nascent and established renewable and energy efficiency industries, influential experts in the business/financial communities, key university M.B.A. programs, and leading business incubators across the country. NREL's Industry Growth Forums and the NREL Investor Directory engage hundreds of investors in the commercialization of clean energy technologies in a highly interactive format. The Growth Forum is now the largest of its genre for clean energy investment; since 2003; presenters have cumulatively raised more than \$3.4 billion in growth financing. The National Alliance of Clean Energy Business Incubators currently includes a national, nine-state network of some 17 of the nation's leading business incubators that have adopted a clean energy business focus—and the Alliance is currently being greatly expanded, and has recently been formed as a not-for-profit entity. The Alliance, forums, and investor networks are highly integrated.

More recently, Murphy has been co-developing the Colorado Clean Tech Initiative with colleagues from the Colorado Front Range which is aimed at developing a clean energy technology cluster, including robust job growth, for Colorado.

Murphy brings more than 30 years of experience to enterprise development and the development of innovative technology. At NREL, Murphy and his teams (with as many as 100 people), have been responsible for the development of numerous technologies. He also spearheaded the development of a world-class, high-flux, solar facility, which is a designated National User Center.

Before joining NREL, Murphy managed the Solar Office for the California Energy Commission, where he was responsible for developing numerous successful solar-technology development initiatives. He began his career with the Sandia Laboratory, where he was a resident expert/consultant in solid mechanics and structures, and played a major role in the development and implementation of several large projects, including the development and deployment of the \$140 million Barstow Central Receiver Solar Pilot Plant.

Murphy is a Fellow of the American Society of Mechanical Engineers (ASME), a professional engineer (CA), and received his Ph.D. from the University of Notre Dame.

#### **Robert O'Connor**

# Corporate Partner Wilson Sonsini Goodrich & Rosati

Robert O'Connor is a corporate partner with Wilson Sonsini Goodrich & Rosati. He is a leader of the firm's clean technology and strategic carbon counseling practice. His work focuses on helping clean technology companies organize and capitalize businesses; raise capital through private and public debt and equity financings; develop and finance renewable energy and biofuels projects; and engage in mergers and acquisitions and other strategic transactions. O'Connor's practice also focuses on counseling companies in connection with transactions involving carbon-related financial instruments and corporate governance and disclosure practices relating to climate change and sustainability. He also advises venture capital and private equity firms in connection with investments in clean technology companies and related projects, and advises investment banks in connection with capital markets transactions in the clean technology sector.

### **Casey Porto**

# Senior Vice President, Commercialization and Deployment National Renewable Energy Laboratory

Casey Porto is senior vice president for Commercialization and Deployment at the National Renewable Energy Laboratory (NREL), managed for the U.S. Department of Energy (DOE) by the Alliance for Sustainable Energy (Alliance) since October 2008. Alliance is a partnership of Midwest Research Institute and Battelle Memorial Institute. She leads a new, \$50 million organization at NREL which is responsible for moving new technologies to the marketplace, as well as achieving broad market adoption of existing solutions for energy efficiency and renewable energy.

Porto was director of Technology Transfer at the Oak Ridge National Laboratory (ORNL), a \$1 billion DOE laboratory managed and operated by UT-Battelle, from 2004-2008. She led the organization responsible for all intellectual property management, licensing, non-federal sponsored research, and new company formation.

Prior to joining ORNL, Porto served as associate vice president for Technology Transfer and executive director of Case Technology Ventures at Case Western Reserve University in Cleveland, OH. At Case, she built an organization which managed the commercialization of intellectual property flowing out of approximately \$270 million of research expenditures and served as executive director of an in-house \$5 million pre-seed investment fund.

Prior to Case, she spent 6 years in Technology Transfer at Carnegie Mellon University in Pittsburgh, with the last 2 years as director of the office. She spent her first 7 years at Carnegie Mellon in the Pittsburgh Supercomputer Center, where she served as a user consultant and also managed the educational programs for researchers across the globe who were using PSC supercomputers in their computational science research.

Porto has served on the boards of several start-up companies and non-profit corporations. She holds a B.S. in Psychology and an M.S. in Information Science from the University of Pittsburgh. She is a member of the Association of University Technology Managers and the Licensing Executive Society.

### William J. Schnoor, Jr.

#### **Partner**

#### **Goodwin Procter**

Bill Schnoor, a partner and co-chair of Goodwin Procter's Technology Companies Group and co-chair of its Clean Technologies Practice, concentrates in the areas of business and securities law, private equity and acquisitions. He joined Goodwin Procter in 2005, after a 21-year career with Testa, Hurwitz & Thibeault, LLP.

Schnoor represents start-ups and other private and public companies in a wide range of industries. He has worked with numerous companies from their initial financing through initial public offerings or acquisitions, and has advised numerous public companies and their boards of directors. Schnoor works with companies across a broad range of industries, including alternative energy and other clean technologies; ecommerce and other internet based businesses; enterprise software; life sciences; and healthcare information technology.

A significant portion of Schnoor's practice has involved cross-border financings and acquisitions. He has represented numerous investment banks in connection with underwritten offerings and their activities as financial advisors to companies engaged in mergers and acquisitions. Schnoor has also represented numerous private equity clients in connection with their own fund-raising and internal organizational issues as well as in making portfolio investments and in connection with matters affecting their portfolio companies.

Schnoor speaks frequently on financing, entrepreneurship and public offerings. He has presented to the Massachusetts Institute of Technology Sloan School New Enterprise course on Legal Issues for Start-Ups, and has appeared as a guest at the Harvard Business School course on Entrepreneurial Management on legal topics. Schnoor is also on the Advisory Board to the Yale Entrepreneurial Institute and has participated as a judge in the Yale Y50k business plan competition.

Schnoor has been selected for inclusion in Chambers Global: The World's Leading Lawyers, Chambers USA: America's Leading Lawyers for Business and The Best Lawyers in America. He received his J.D. from Yale University and his B.A. from Yale College (summa cum laude).

#### **Rachel Sheinbein**

# Principal CMEA Capital

Rachel Sheinbein joined CMEA Capital in 2008 and is a principal with the Energy and Materials team. Sheinbein is an on the boards of CMEA portfolio companies Contour Energy Systems, Danotek Motion Technologies, and Solaria

Corporation. Before CMEA, Sheinbein was a consultant for start-ups in the areas of bio-plastics, solar, and water treatment. For 9 years prior to consulting, Sheinbein worked in several positions at Intel Corporation—as a chemical engineer for industrial liquid waste and wastewater systems, a program manager for Environmental Health & Safety, focusing on metrics and new technology, a purchasing analyst, and a strategic product manager for Supply Chain IT.

Sheinbein is the president of the board of Expanding Your Horizons Network, a nonprofit that encourages girls in math, science, engineering and technology. In addition, Sheinbein volunteers in various roles for California Clean Tech Open—a business plan competition that encourages the development of clean technology companies and Imagine H2O—a not-for-profit that is turning water problems into entrepreneurial opportunities.

Sheinbein holds a Chemical Engineering degree with a concentration in Environmental Engineering from the University of Pennsylvania. Sheinbein was also a sponsored fellow at the Massachusetts Institute of Technology (MIT) where she received an M.B.A. and a Masters in Civil and Environmental Engineering, with a focus on operations and supply chain.

#### Mike Sherman

#### **Partner**

### **Chrysalix Energy Venture Capital**

Mike Sherman has been with Chrysalix since its inception. He is Chairman of the Board of ReliOn, a Director of PurFresh, and Epyon Power BV, and an observer on the Boards of Lilliputian Systems, and General Fusion. He manages interaction with Chrysalix' European affiliated fund SET Ventures, based in Amsterdam, and currently leads Chrysalix' investment activities in electric vehicle infrastructure, advanced batteries, thermal conversion, water technologies, green buildings, and distributed power.

Chrysalix was one of the first VC firms to dedicate itself exclusively to investing in and supporting early stage clean energy technology companies. Since being founded in 2001, Chrysalix has grown to over \$300 million under management, with 27 active portfolio companies in funds in North America and Europe.

Sherman brings 15 years experience in marketing, finance, and strategic planning with early stage clean technology and growth companies. Prior to joining Chrysalix he worked in strategic planning with Starbucks Coffee Company's Corporate Business Alliances group. He has been dedicated to clean technology venture capital for almost 10 years.

#### **Anders E. Solem**

# Corporate Vice President, New Business Initiatives Lockheed Martin Corporation

Anders E. Solem is corporate vice president, New Business Initiatives at Lockheed Martin Corporation, responsible for business expansion into new and adjacent markets. He joined Lockheed Martin in May, 2009 from the General Electric Company, where he was most recently vice president, Global Product Management & Marketing for GE's Water & Process Technologies business. Prior to that, he served for 4 years in Shanghai, China as the president & CEO of GE Infrastructure China.

After separating from the USAF as a Captain, Solem joined GE Aviation in 1993, became country director for Japan, based in Tokyo, in 1995 and was named regional vice president for Services in 1997 with responsibility for Japan, Korea, and Greater China. He returned to GE Aviation in Evendale, Ohio in 1999 as president of On Wing Support (OWS), Inc. and subsequently held the role of GM, Services Marketing, before his promotion to VP, Large Military Engines, Military Systems, from 2001 – 2004. In 2004, Solem moved with his family to Shanghai, China to begin the new role of president and CEO, GE Transportation, China, responsible for GE's Aviation and Rail Business Operations in China. In January, 2006, he was promoted to become the president and CEO, GE Infrastructure China with responsibility for GE Aviation, Energy, Oil & Gas, Transportation, and Water business operations in China, along with oversight of GE Capital's Aviation and Energy Finance Services units.

Solem holds a B.S. degree in Astronautical Engineering from Massachusetts Institute of Technology (MIT) and an M.S. degree in Aeronautical Engineering from the University of Tokyo. He is married, with 3 children.

#### **Trond Unneland**

# Vice President and Managing Executive Venture Capital

Trond Unneland is vice president of the Venture Capital business unit of Chevron Technology Ventures. In this capacity, he is responsible for identifying and investing in promising new technology that can deliver a clear competitive advantage and superior financial returns for Chevron.

A native of Norway, Unneland graduated from Stavanger University where he earned his B.S degree in petroleum engineer and an M.S. degree in reservoir engineering. He later received his doctor of technical sciences from the Norwegian University of Science and Technology. He also served as a visiting scholar at Stanford University, and has worked for the Norwegian Industry Attaché at the Royal Norwegian Consulate General, San Francisco, CA.

In 1984, Unneland began his professional career as a petroleum engineer with Statoil in Bergen, Norway, working in offshore oil production operations. After serving in various positions of increasing responsibility, he was named vice president of information technology in 1998.

Unneland joined Chevron in 2000 as technology account manager for Chevron Energy Technology Company. In 2004, he was named managing director and country manager for Chevron Denmark, where he was responsible for leading all of the company's upstream operations and serving on the executive leadership team for all of Chevron's European upstream business.

In 2006, he returned home as managing director and country manager for Chevron Norway with management responsibility for technical, financial, personnel, planning, and reporting for the company's upstream business. Unneland assumed his current post in August 2007.

The author of numerous articles on reservoir management and well dynamics, Unneland has been cited as an expert source in more than 100 international technical papers. He has been recognized three times by the Society of Petroleum Engineers for his service to the organization.

Unneland is currently a board observer for the four portfolio companies Brightsource Energy, DynaPump, RealityMobile, and Southwest Windpower.

# Sanjay J. Wagle

# Associate Director, Commercialization for the Advanced Research Projects Agency–Energy Renewable Energy Advisor, Office of the Secretary U.S. Department of Energy

Sanjay Wagle serves as associate director–Commercialization for the Advanced Research Projects Agency–Energy (ARPA-E), the newly-created unit of the U.S. Department of Energy (DOE) that funds high-risk, high reward energy research projects. In addition, Wagle has served as Renewable Energy Advisor for American Recovery and Reinvestment Act programs at DOE. He comes to DOE from Silicon Valley, where he was a principal in the CleanTech Group of the venture capital firm VantagePoint Venture Partners, a leading investor in renewable energy and clean technology companies, with over \$1 billion committed to the sector. Previously, Wagle was a founding principal of Expansion Capital Partners, one of the early venture capital firms investing in clean technologies, and prior to that he served as an investment officer at the International Finance Corporation, a unit of the World Bank.

Wagle holds a B.A. from Harvard University and an M.B.A. from the University of California at Berkeley.

#### **David H. Wells**

#### **Partner**

### Kleiner, Perkins, Caufield & Byers

David H. Wells joined the Greentech investing team at Kleiner, Perkins, Caufield & Byers in May 2006.

Responsibilities include knowledge mapping and opportunity sourcing across the entire landscape of Green technologies. Building relationships with scientists and entrepreneurs throughout the U.S. and Europe, Wells has helped bring many ventures through the KP investment process including due diligence, investment structuring, goal setting, and team building.

Beginning with a collaboration with KP partner Bill Joy in 2004, Wells has built a detailed and diverse base of Greentech knowledge across multiple energy technologies and scientific disciplines, together with a matching knowledge base of resources, markets, and incumbents. Every aspect of energy, planetary resources, and emissions has been studied in detail and mapped to target recognition of disruptive order-of-magnitude and tipping-point innovations.

Wells' background includes ten years of technical experience in marine and shipboard engineering, and eight years building and selling a nation-wide business in Japan.

#### **Tim Woodward**

#### **Managing Director Nth Power**

Tim Woodward joined Nth Power in 1998 as a Managing Director. He has led investments in companies involved in renewable energy, demand side management, advanced metering, and outsourced utility customer management. He was the lead investment partner for the firm's successful investments in Evergreen Solar (ESLR), Comverge (COMV) and Proton Energy Systems (DESC). Woodward currently serves on the boards of AllConnect, Soliant Energy, Tioga Energy, Precursor Energetics, and is a board observer for Rive Technology.

Prior to joining Nth Power, Woodward spent eight years managing venture capital investments for Liberty Environmental Partners, a firm that focused on energy, industrial, and environmental technologies. Before starting a career in venture capital, Woodward was involved in the launch of First Source, a company providing industrial solvent recycling services. He also spent more than six years in international marketing for an industrial filtration equipment manufacturer.

Woodward received his M.B.A. with honors from The Anderson Graduate School of Management at UCLA where he focused on entrepreneurial studies and strategic planning. He received his B.S. in Resource Economics from UC Berkeley in 1982.